Regency® COMMUNICATIONS INC.

SERVICE MANUAL

UHF-FM MOBILE TRANSCEIVERS

MODELS

MCU 03A,03B; MCU 06A,06B
MCU 15,15H; MCU 18,18H
MCU 31,31H; MCU 34,34H

1227 S. PATRICK DR.
SATELLITE BEACH, FLA

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MICRO-COM SERIES SERVICE MANUAL

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SECTION 1 GENERAL INFORMATION

1-1 Description

The Regency MICRO COM U03, U15 and U30 series radios are transistorized FM transceivers designed for operation in the UHF (450-512 MHz) communications band. The model identifier indicates maximum power rating, maximum number of channels, and frequency band information. The MICRO COM U03 has a 2W EIA intermittent duty cycle power output, the MICRO COM U15 a 15W rating, and the MICRO COM U31 a 35W rating. Models MICRO COM U03, U15 and U31 are one-channel transceivers and models MICRO COM U06, U18 and U34 are four-channel units. The UHF frequency band is split into a 450-476 MHz band designated by A or no designation and a 470-512 MHz band designed by B or H.

The transmitter and receiver sections can be pre-tuned to any frequency within the limits of either of the two bands. The transmitter and receiver are independently tuned, thus either can be tuned to a different frequency. The maximum frequency spread for the receiver is ±0.75 MHz from center frequency (1.5 MHz from highest to lowest frequency) while the maximum transmitter spread is ±3 MHz (6 MHz from highest to lowest frequency) with no performance degradation. When center-tuned the transmitter is specified to meet its power rating over a frequency range of ±1.5 MHz. If a transmitter frequency spread greater than 1.5 MHz is required, a broadband tuning procedure must be followed. All transmitter tuning procedures are dependent on the main board version. The boards are identified on the solder side of the main P.C. Board in the exciter half of the board. The broadband tuning procedure is TP-14-155 for boards marked 1700-6404-200 and is TP-14-272 for boards marked 704-064.

The receiver section is a double-conversion, super-heterodyne type receiver. Silicon transistors and Integrated Circuits are used, providing for compactness and circuit reliability under varying ambient conditions. A crystal first IF filter and a ceramic second IF filter are used for optimum performance where numerous channels are active.

The transmitter uses rugged RF power transistors for reliability. A VSWR protection circuit protects the RF power transistors if the antenna or its coaxial feedline becomes open or shorted.

The transmitter uses direct frequency modulation. Internal controls are provided for setting the amount of deviation. The deviation control is adjusted for a maximum of ±5 KHz deviation, in conformance with FCC regulations.

The attenuation of spurious emissions from the transmitter, RF power output, frequency stability, performance under varying conditions of temperature and battery voltage, and other specifications, all exceed the limits required for Type Acceptance by the Federal Communications Commission.

NOTE: The Regency Type MICRO COM U03A, U06A, U15, U18, U31 and U34 are typed accepted under Parts 21, 89, 91, 93 (90) and 95 and MICRO COM U03B, U06B, U15H, U18H, U31H and U34 H under Parts 21, 89, 91 and 93 (90) of the F.C.C. Rules and Regulations.

1-2 Specifications

Transceiver Specifications	304-112
Transmitter Output Power center-tuned	304-114
Transmitter Output Power Double-tuned	304-115
Sensitivity Performance	304-116
Self Quieting Spurious	304-122

1-3 Equipment Supplied

a. 1 - Transceiver
b. 1 - Microphone and Connector
c. 1 - Mobile Mounting Bracket
d. 1 - Mobile Mounting Hardware
e. 1 - DC Power Cord and Fuse
f. 1 - Owner's Instruction Manual
g. 1 - External Speaker Connector

1-4 Equipment Available, Not Supplied

a. Telephone Handset (MA-79) (MA-126)
b. Microphone (replacement use) (MA-83)
c. DC Power Cord (replacement use) (MA-168)
d. Accessory Plug Kit (MA-85)
e. CTCSS w/Call Light Circuit Encoder/Decoder (MA-164)
f. CTCSS Encoder (MA-166)
g. Standard Scanner (MA-127)
h. Priority Scanner (MA-129)
i. TTS Decoder (MA-123)
j. 2805 Decoder (MA-147)
k. Open Channel Scanner (MA-128)
l. Audio PA (MA-163)
m. Timeout Timer (MA-130)
n. Horn Relay Driver (MA-131)
o. Security Bracket (MA-12)
p. Quickmount Thumbscrews (MA-35)
q. Additional Mounting Bracket (MA-63)
r. External Speaker (MA-108)
s. Central Metering (MA-132)
t. CTCSS Two-Call Decoder/Encoder (MA-146)
u. R.F. Preselector (MA-305)

1-5 Equipment Not Supplied

a. 1 - Antenna
b. 1 - Coaxial Cable feedline
c. 1 - Coaxial Cable Connector
d. 1 - Power Supply (battery)

1-6 Installation

Mobile (12 VDC) Installation:

The MICRO COM series transceivers are designed for installation in any vehicle that has a 12 VDC negative ground system. The RED lead, with the fuseholder, must be connected to the POSITIVE (+) terminal side of the battery. The BLACK lead should be connected to the NEGATIVE (-) terminal side of the battery, or to a metal chassis that is grounded to the negative terminal. In the event that the battery is remotely located, it may be necessary to install additional wires for properly connecting the radio to the battery's terminals.

Due to the use of the mic hang-up to control a function in the MICRO COM, it is important that the hanger clip be securely grounded. If this is not accomplished by the mounting screws (many new vehicles have plastic dashboards), a separate wire must be added connecting to electrical ground or directly to the transceiver chassis.

THE ANTENNA USED SHOULD BE PROPERLY ADJUSTED FOR THE 50 OHM OUTPUT OF THE TRANSMITTER. A HIGH SWR WILL REDUCE THE POWER OUT, OR MAY EVEN SHUT OFF THE TRANSMITTER ENTIRELY.

Connections for an external (or remotely mounted) speaker are provided. These terminals are connected to the audio output and may be used as a convenient test point. In permanent installations, the internal speaker should be disconnected. The use of a 3 to 4 ohm external speaker, (Regency MA-108) is recommended.

The remaining connector has no wiring installed and is provided for the users' convenience in connecting various special functions, accessories, etc. For wiring this connector, the Regency MA-85 kit provides all necessary items.

1-7 Operation

The OFF-ON Switch is an integral part of the VOLUME control. Turning this control fully counter-clockwise until a click is heard will turn the unit off. Maximum volume, or audio output, occurs when the volume control is turned fully clockwise.

The receiver's audio is squelched off when the SQUELCH control is turned COUNTER-CLOCKWISE. Turning this control counter-clockwise until the noise just disappears (threshold squelch) permits the receiver to be "quiet" until an actual signal is received. With the squelch control set fully counter-clockwise, the receiver will still operate properly and will not be locked-out (prevented from responding to a received signal).

The MICRO COM U06A, U18 and U34 are all capable of operating on any one of four frequencies. The desired channel is selected by turning the Channel Selector to the position corresponding to the desired channel F1, F2, F3 or F4, the Indicator Lamp will light for that channel.

A high impedance ceramic microphone is supplied with the unit. To install the microphone on the unit, insert the connector plug into its socket with the locating tab toward the bottom of the radio. The connector is then locked into place by rotating the locking ring 1/4 turn clockwise.

To transmit a message, it is only necessary to press the push-to-talk button on the microphone and speak into the microphone. The Transmit Indicator will come on to signify that the transmitter is activated. Best results are obtained by holding the microphone about one inch from the lips and inclined at about a 30 degree angle away from the face. Speak clearly in a normal tone of voice across the face of the microphone.

1-8 Crystal Specifications

Miniature plug-in crystals are used in both the receiver and transmitter sections.

The following Regency Part Number crystals are used:

Transmit Crystals:	302-539
Receive Crystals:	302-540

Crystals should be ordered by specifying the above part numbers and the exact channel frequency required.

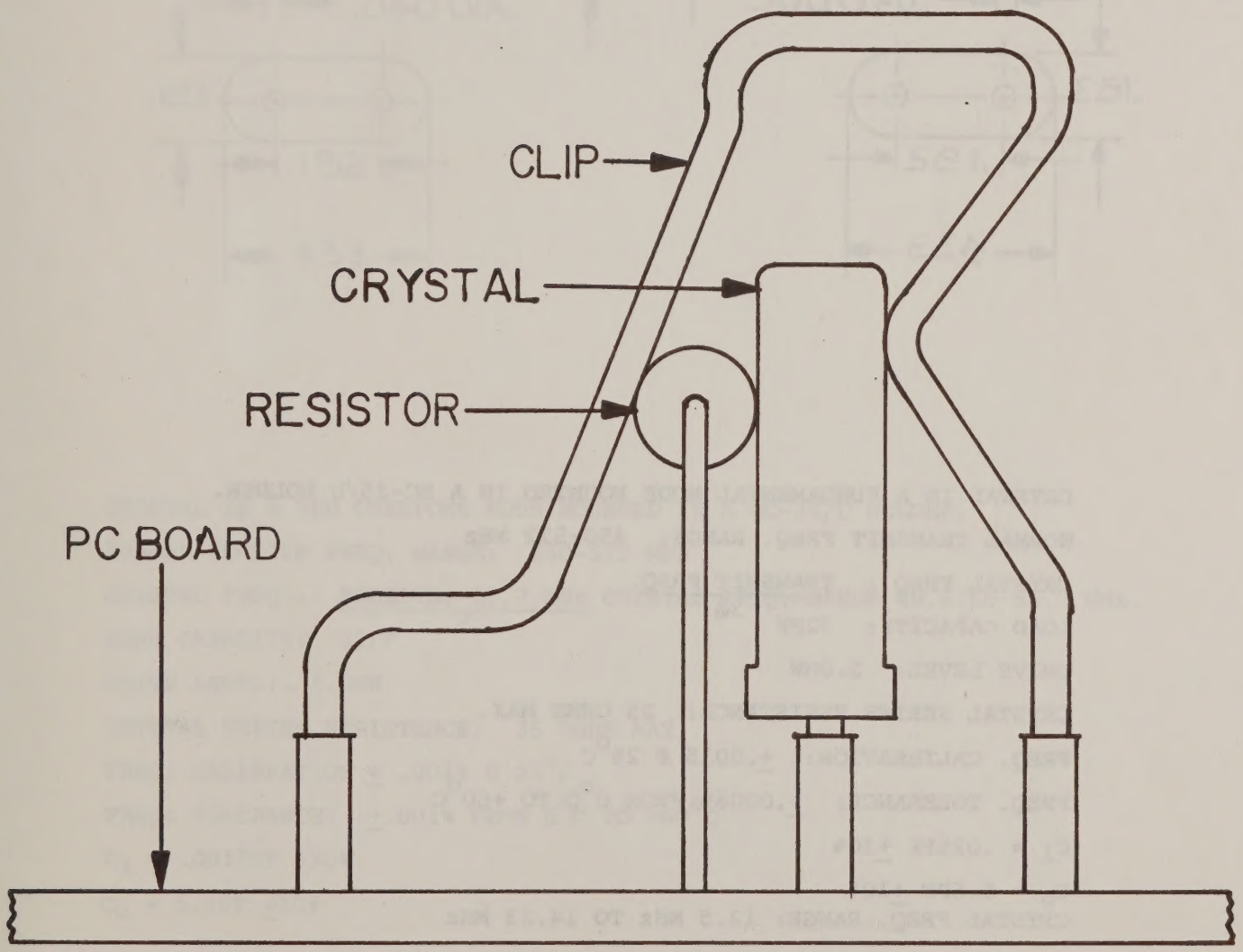
1-9 Crystal Installation

Prior to installing a crystal, the transceiver's cover will have to be removed. To remove this cover, unscrew the two large bolts located at the sides of the unit, and the four screws on the speaker cover wrap. The cover may then be slipped off by lifting it off the unit.

Special care must be taken to install the crystals properly. A crystal heater circuit is used to maintain the crystal frequency within 5 ppm of its frequency assignment by maintaining the crystal body temperature above 0°C even at an ambient temperature of -30°C. To insure this, the crystal must make physical contact with the heating resistor. In a single channel or if only one crystal is installed next to a heater resistor, a crystal clip must be used as shown in Figure 1-9 . In a four channel where both crystals are installed either side of the heater resistor, the crystals should, by themselves, maintain the crystal to heater resistor contact. All crystals should be pressed down into the socket pins when inserted.

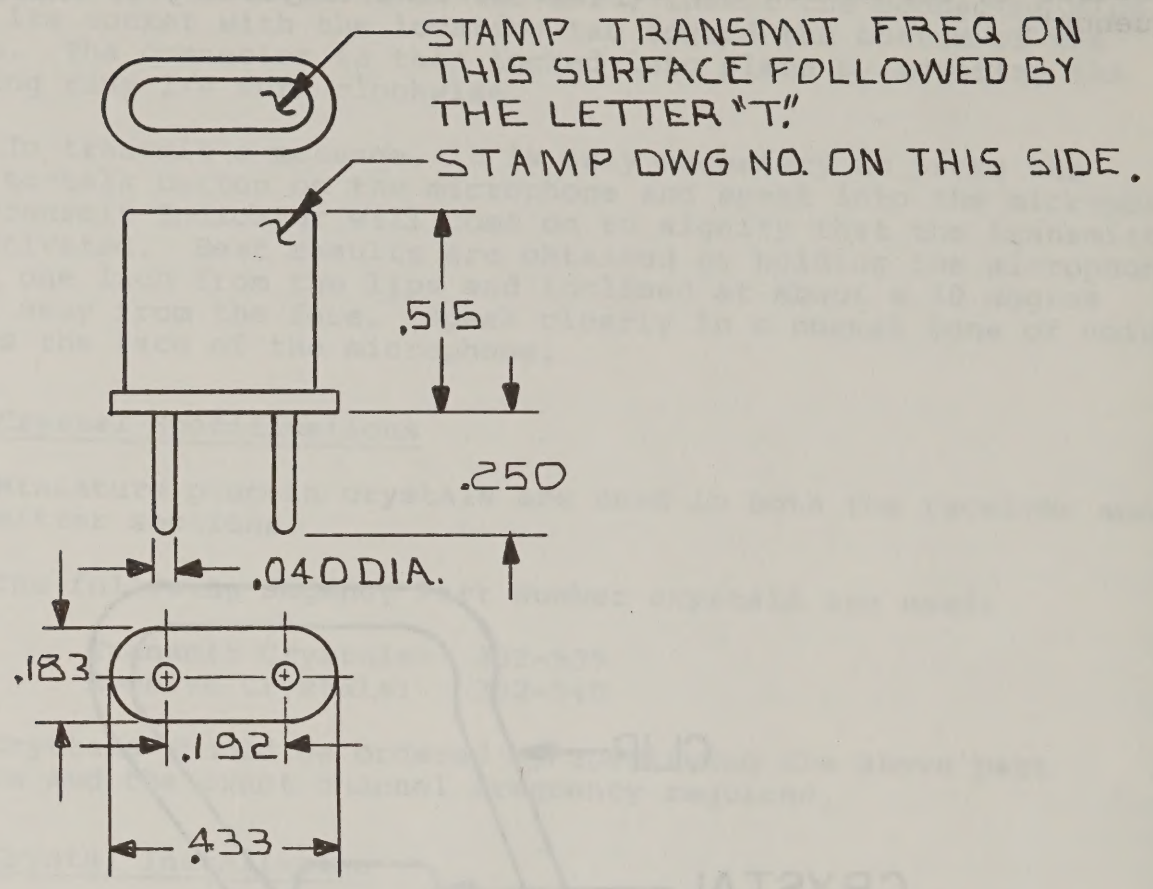
FCC Regulations require that the TRANSMIT crystal be installed and adjusted "on frequency" under the supervision of a technician holding either a First or Second Class FCC license.

Refer to the receiver alignment and transmitter tuning procedures in the manual for crystal netting (adjusting to exact frequency).



CRYSTAL HEATING DETAIL

FIGURE 1-9



CRYSTAL IS A FUNDAMENTAL MODE MOUNTED IN A HC-25/U HOLDER.

NORMAL TRANSMIT FREQ. RANGE: 450-512 MHz

CRYSTAL FREQ.: $\frac{\text{TRANSMIT FREQ.}}{36}$

LOAD CAPACITY: 32PF

DRIVE LEVEL: 2.0MW

CRYSTAL SERIES RESISTANCE: 25 OHMS MAX.

FREQ. CALIBRATION: $\pm$.0015 @ 25°C

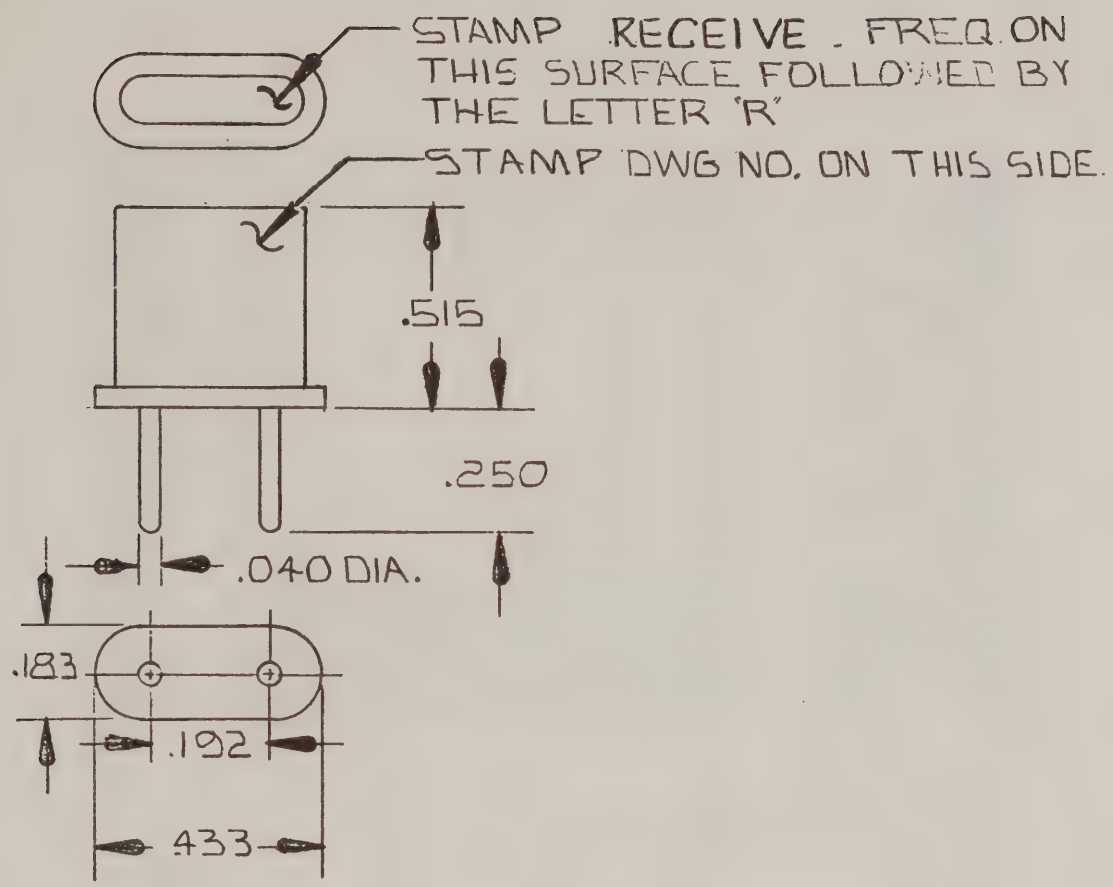
FREQ. TOLERANCE: $\pm$.0005% FROM 0°C TO +60°C

C_1 = .025PF $\pm$10%

C_o = 5.5PF $\pm$10%

CRYSTAL FREQ. RANGE: 12.5 MHz TO 14.23 MHz

TRANSMIT CRYSTAL 302-539



CRYSTAL IS A 3RD OVERTONE MODE MOUNTED IN A HC-25/U HOLDER.

NORMAL RECEIVE FREQ. RANGE: 450-512 MHz

CRYSTAL FREQ.: RECEIVER-10.7 MHz CRYSTAL FREQ. RANGE 48.8 to 55.7 MHz.

LOAD CAPACITY: 32PF

DRIVE LEVEL: 2.0MW

CRYSTAL SERIES RESISTANCE: 35 OHMS MAX.

FREQ. CALIBRATION $\pm$ .001% @ 25°C

FREQ. TOLERANCE: $\pm$.001% FROM 0°C TO +60°C

C_1 = .0017PF $\pm$20%

C_o = 5.5PF $\pm$10%

RECEIVE CRYSTAL 302-540

304-112 | 1 | B

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASE R-016 dw	9-7-78	Daf
	B	RELEASE R-191 CMC	7-31-79	CJM

No	GENERAL	NOMINAL	GUAR
	BANDS	1/4	
	FREQ RANGE	450-512 MHz 2 BANDS	
3	OPERATING TEMP	-30°C TO +60°C	
4	OPERATING DUTY CYCLE	EIA INTERMIT 1/4 MIN .5/15 MIN 8HR 3 CYCLE	
5	SIZE (W-D-H)	6-1/2" x 11-5/8" x 2-5/8"	16.5 x 29.5 x 6.7 CM
6	WEIGHT (INSTALLATION)	4-3/4 lb	2.15 KG
7	POWER	13.6V DC	
	CURRENT DRAIN	@ 13.6V DC	
8	RCVR SQUELCH	180 MA *	
9	RCVR MAX AUDIO	800 MA *	
10	TRANSMIT	10A/5A *(ADD 600 MA BELOW 0°C)	
	ANTENNA	50Ω	
12	CHANNEL SPACING	25 KHz	

No	RECEIVER	NOMINAL	GUAR
	SENSITIVITY		
13	20 DB μ	.4 μV	.5 μV (MAX)
14	12 DB SINAD	3 μV	.35 μV (MAX)
	AUDIO SQ SENSITIVITY		
15	THRESHOLD	.20 μV	.25 μV (MAX)
16	TIGHT	.55 μV	.7 μV (MAX)
17	CLOSS		.20 μV (MAX)
18	ADJ CH SEL 20 DB	120db	100 db (MIN)
19	ADJ CH REJ 6 DB	83db	80db (MIN)
20	OPERATING BANDWIDTH	±750KHz FROM CTR	SEE 304-116
21	SPURIOUS & IMAGE	85 db	80 db (MIN)
22	IM 20 DB μ		75 db (MIN)
23	IM 12 DB SINAD		75 db (MIN)
24	MAB	± 6.5 KHz	± 7.5KHz (MAX)
25	FREQ STAB TEMP		± .0005% (MAX)
26	FREQ STAB VOLTAGE		± .0001% (MAX)
27	AUDIO RESPONSE		EIA +2/-8: 6db/OCT DE-EMPHASIS
28	AUDIO OUT PWR (MAX)		4W @ 5% DISTORTION

No	RECEIVER	NOMINAL	GUAR
29	AUDIO OUT PWR (MAX)		5W @ 10% DISTORTION
			3KHz DEV, 300-3KHz NONE EIA
			150 ms (MAX)
			250 ms (MAX)
			45 db / 60 db (UNSQ/SQ)
			FCC

No	TRANSMITTER	NOMINAL	GUAR
40	PWR OUT-HI	40 W/20W	35W/15W (MIN)
41	PWR OUT-LOW		70 W/30W
42	UNIT FREQ STAB (TEMP)		± 0005% (MAX)

No	TRANSMITTER	NOMINAL	GUAR
43	UNIT FREQ STABILITY		.0001% (MAX)
44	SPUR HARM CONDUCTED		-60db/56 db (MAX)
45	SPUR HARM RADIATED		-60 db/56db (MAX)
46	OPERATN BANDWIDTH	± 3.0MHz FROM CTR	SEE 304-114/304-115
47	EMISSION		16 F 3
48	MODULATION		± 5 KHz (MAX)
49	AUDIO FREQ DISTORTION		3 % (MAX)
50	FM HUM & NOISE		- 60 db (MAX)
51	AM HUM & NOISE		34 db (MAX)
52	AUDIO FREQ RESPONSE		EIA: +1/-3 6db OCT PREEMPHASIS
53	TRANS CARRIER ATTACK		EIA: 100 ms (MAX)
54	SIDEBAND SPECTRUM		EIA: -55db
55	HIGH HUMIDITY		
56	VIBRATION STABILITY		
57	SHOCK STABILITY		

MCU 18 H	MCU 34 H
MCU 18	MCU 31 H
MCU 15 H	MCU 34
MCU 15	MCU 31
NEXT ASSY	USED ON
APPLICATION	

DO NOT SCALE DWG

MATERIAL

FINISH

APPROVALS	DATE
DRAWN dw	8-78
CHECKED	
QA	9-7-78
ENGR Daf	9-7-78

304-112

Regency COMMUNICATIONS INC
SATELLITE BEACH, FLORIDA 32937

SPECIFICATIONS

MICRO-COM U 30/15 SERIES

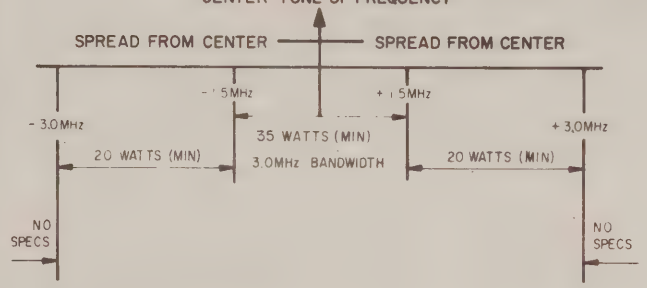
SIZE B | PART NUMBER 304-112 | REV B

SCALE ____ | SHEET 1 OF 1

DWG NO 304-114 | SH 1 | REV A

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
—	A	RELEASE R-016	9-7-78	DAJ

CHART I
CENTER TUNE UP FREQUENCY



COMPUTATION TABLE (SEE NOTE 3)

(STEP 1) RECEIVE FREQ	(STEP 2) LARGEST/SMALLEST	(STEP 5) SPREAD FROM CTR	(STEP 6) WORST EXPECTED PWR OUT
F1 450.625 MHz	SMALLEST	-2.0 MHz	20 W
F2 452.125		-.5 MHz	35 W
F3 452.625		CENTER	35 W
F4 454.125	LARGEST	+2.0MHz	20 W

NOTES:

1. THE CENTERMOST FREQUENCY SHOULD BE SELECTED TO TUNE THE TRANSMITTER PER TP14-154.
2. TRANSMITTER POWER OUTPUT DEGRADATION MAY BE COMPUTED BY FOLLOWING THE STEPS LISTED BELOW AND THE COMPUTATION TABLE TO THE LEFT
3. STEP 1 - WRITE FREQUENCY DOWN
   STEP 2 - DETERMINE LARGEST AND SMALLEST VALUE
   STEP 3 - Δ = LARGEST - SMALLEST = BAND SPREAD
   Δ = 454.625 - 450.625
   Δ = 4.0 MHz
   STEP 4 - BEST CENTER FREQUENCY (BCF)
   BCF = SMALLEST + (Δ - 2)
   BCF = 450.625 + 4.0MHz - 2
   BCF = 450.625 + 2.0MHz
   BCF = 452.625
   IF BCF IS NOT F1, F2, F3 OR F4, CHOOSE CLOSEST VALUE & USE FOR BCF
   STEP 5 - COMPUTE SPREAD FROM CENTER OF EACH FREQUENCY
   F1-BCF = 450.625-452.625 = -2.0MHz
   F2-BCF = 452.125-452.625 = -0.5MHz
   F3-BCF = 452.625-452.625 = CENTER
   F4-BCF = 454.625-452.625 = +2.0 MHz
   STEP 6 - COMPUTE WORST EXPECTED POWER FROM CHART I
   F1 — -2.0MHz (FALLS BETWEEN -1.5MHz & 3.0MHz) THEREFORE, READ DOWN THE COLUMN TO 20W
   F2 — SIMILAR TO F1
   F3 — SIMILAR TO F1
   F4 — SIMILAR TO F1

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE FRACT ± DEC xx± xxx± ANGLE ±	APPROVALS	DATE
			DRAWN [illegible]	9-5-78
			CHECKED EMC	9-6-78
			QPTG [illegible]	9-7-78
		MATERIAL —	ENGR DAJ	9-7-78
	MCU 30	FINISH —		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DWG.	304-114	

Regency COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937

TRANSMITTER PWR OUTPUT PERFORMANCE DEGRADATION
(CENTER TUNED)

SIZE B | PART NUMBER 304-114 | REV A

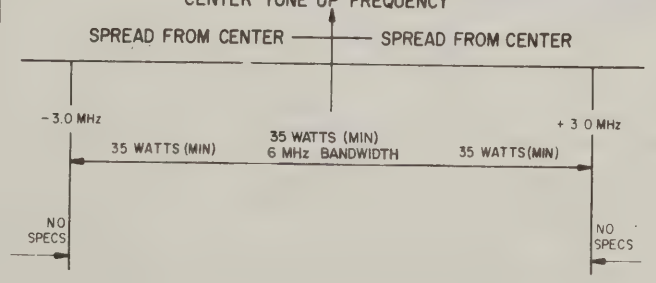
SCALE — | SHEET 1 OF 1

BISHOP GRAPHICS/ACCUPRESS REORDER NO A-2306

DWG. NO. 304-115 SH 1 REV A

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
—	A	RELEASE R-016	9-7-78	BDJ

CHART I
CENTER TUNE UP FREQUENCY



NOTES:

1. THE TRANSMITTER MUST BE TUNED BY TEST PROCEDURE 14-155 (DOUBLE TUNED) FOR THIS COMPUTATION METHOD TO BE USED
2. TRANSMITTER POWER OUTPUT DEGRADATION MAY BE COMPUTED BY FOLLOWING THE STEPS LISTED BELOW AND THE COMPUTATION TABLE TO THE LEFT
3. STEP 1- WRITE FREQUENCY DOWN
   STEP 2- DETERMINE LARGEST AND SMALLEST VALUE.
   STEP 3- Δ = LARGEST − SMALLEST = BAND SPREAD
   Δ = 455.125 − 450.125
   Δ = 5.0 MHz
   STEP 4- BEST CENTER FREQUENCY (BCF)
   BCF = SMALLEST + (Δ÷2)
   BCF = 450.125 + 5.0 MHz ÷ 2
   BCF = 450.125 + 2.5 MHz
   BCF = 452.625
   IF BCF IS NOT F1, F2, F3 OR F4, CHOOSE CLOSEST VALUE & USE FOR BCF
   STEP 5- COMPUTE SPREAD FROM CENTER OF EACH FREQUENCY
   F1-BCF = 450.125 - 452.625 = -2.5 MHz
   F2-BCF = 452.125 - 452.625 = -0.5 MHz
   F3-BCF = 452.625 - 452.625 = CENTER
   F4-BCF = 455.125 - 452.625 = +2.5 MHz
   STEP 6 COMPUTE WORST EXPECTED POWER FROM CHART I
   F1 — -2.5 MHz, READ DOWN THE COLUMN TO 35W
   F2 — SIMILAR TO F1
   F3 — SIMILAR TO F1
   F4 — SIMILAR TO F1

COMPUTATION TABLE (SEE NOTE 3)

(STEP 1) RECEIVE FREQ	(STEP 2) LARGEST/SMALLEST	(STEP 5) SPRD FRM CTR	(STEP 6) WORST EXPECTED PWR OUT
F1-150.125 MHz	SMALLEST	-2.5 MHz	35W
F2-152.125		-.5 MHz	35W
F3-152.625		CENTER	35W
F4-155.125	LARGEST	+2.5 MHz	35W

	MCU 30
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE FRACT ± DEC XX± XXX± ANGLE ±

MATERIAL

FINISH

DO NOT SCALE DWG.

APPROVALS	DATE
DRAWN	9-5-78
CHECKED CMC	9-6-78
QFTG SUPV	9-7-78
ENGR BDJ	9-7-78
304-115	

Regency COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937

TRANSMITTER PWR OUTPUT PERFORMANCE DEGRADATION (DOUBLE TUNED)

SIZE B PART NUMBER 304-115 A

SCALE — SHEET 1 OF 1

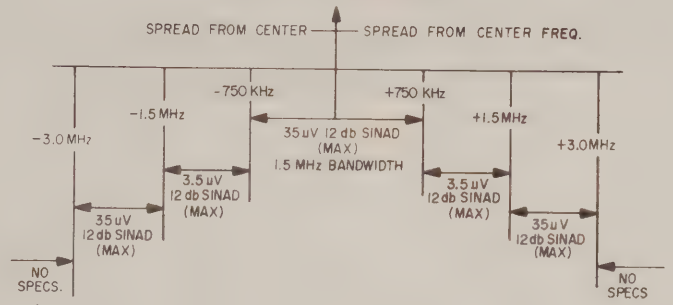
BISHOP GRAPHICS/ACCUPRESS REORDER NO. A-2306

DWG NO 304-116 SH 1 REV A

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASE R-016	9-7-78	RDJ

CHART 1

CENTER TUNE UP FREQUENCY



COMPUTATION TABLE (SEE NOTE 3)			
(STEP 1) RECEIVE FREQ	(STEP 2) LARGEST/SMALLEST	(STEP 5) SPREAD FROM CENTER	(STEP 6) WORST EXPECTED 12 db SINAD
F1-151.625 MHz	SMALLEST	-1.0 MHz	3.5 uV
F2-152.125 MHz		-.5 MHz	.35 uV
F3-152.625 MHz		CENTER	.35 uV
F4-153.625 MHz	LARGEST	+1.0 MHz	3.5 uV

NOTES:

1. THE CENTERMOST FREQUENCY SHOULD BE SELECTED TO TUNE THE RECEIVER.
2. RECEIVER SENSITIVITY DEGREDATION MAY BE COMPUTED BY FOLLOWING THE STEPS LISTED BELOW AND BY USING THE COMPUTATION TABLE TO THE LEFT.
3. STEP 1 - WRITE FREQUENCY DOWN
   STEP 2 - DETERMINE LARGEST AND SMALLEST VALUE
   STEP 3 - Δ = LARGEST - SMALLEST = BAND SPREAD
   Δ = 453.625 - 451.625
   Δ = 2.0 MHz
   STEP 4 - BEST CENTER FREQUENCY (BCF)
   BCF = SMALLEST + ($\Delta \div 2$)
   BCF = 451.625 + 2.0 MHz $\div$ 2
   BCF = 451.625 + 1.0 MHz
   BCF = 452.625
   IF BCF IS NOT F1, F2, F3 OR F4, CHOOSE CLOSEST VALUE & USE FOR BCF.
   STEP 5 - COMPUTE SPREAD FROM CENTER OF EACH FREQUENCY
   F1-BCF = 451.625 - 452.625 = -1.0 MHz
   F2-BCF = 452.125 - 452.625 = -0.5 MHz
   F3-BCF = 452.625 - 452.625 = CENTER
   F4-BCF = 453.625 - 452.625 = +1.0 MHz
   STEP 6 - COMPUTE WORST QUIETING FROM CHART 1
   F1 = -1.0 MHz (FALLS BETWEEN -750 KHz & -1.5 MHz) THEREFORE, READ DOWN THE COLUMN TO 3.5 uV
   F2 - SIMILAR TO F1
   F3 - SIMILAR TO F1
   F4 - SIMILAR TO F1

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT ± DEC .xx± .xxx± ANGLE ±	APPROVALS	DATE
			DRAWN WMC	9-5-78
			CHECKED CMC	9-6-78
			DFTG. SUPV [illegible]	9-7-78
		MATERIAL —	ENGR RDJ	9-7-78
	MCU 30	FINISH —		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DWG.		

Regency COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937

SENSITIVITY PERFORMANCE DEGREDATION

SIZE B | PART NUMBER 304-116 | REV A | SCALE — | SHEET 1 OF 1

BISHOP GRAPHICS/ACCUPRESS REORDER NO. A 2306

DWG. NO. 304-122 SH 1 REV. A

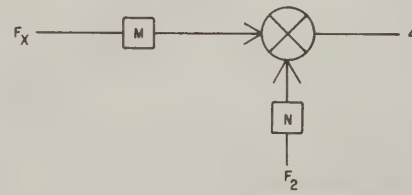
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASE R-069	10-6-78	Daf

2nd LOCAL OSCILLATOR SELF QUIETING SPURS

MODELS AFFECTED	
MICROCOM	U01
	U04
	U10R
	U10RH
	U11
	U11H
	U11B
	U11BH
	U12
	U12H
	U14
	U14H
	U14B
	U14BH
	U15
	U15H
	U18
	U18H
	U31
	U31H
	U34
	U34H

TABLE of SELF QUIETING SPURS
1st & 2nd ORDER 2nd LO GENERATED

RANGE OF SELF QUIETING SPURS F_R in MHz	2nd LO FREQ (MHz) F2	HARMONIC ORDER M	HARMONIC ORDER N	ALTERNATE 2nd LO FREQ (MHz) F2
467.500 – 467.775	10.245	1	5	11.155
475.675 – 475.950		1	5	
469.600 – 469.750		2	10	
473.700 – 473.850		2	10	
470.325 – 470.400		3	15	
473.050 – 473.125		3	15	
501.050 – 501.150		3	16	
503.775 – 503.875		3	16	
508.450 – 508.725	11.155	1	5	10.245
464.450 – 464.600		2	9	
460.350 – 460.500		2	9	
510.550 – 510.700		2	10	
480.525 – 480.625		3	14	
477.800 – 477.900		3	14	
511.275 – 511.350		3	15	



F_R CALCULATED FROM

a) $MFx \pm NF2 = \pm 455\,KHz \pm 15\,KHz$

b) $F_R = \frac{9}{M}\left[Fx \pm (455\,KHz \pm 15\,KHz)\right] + 10.7\,MHz$

NOTES:

1. ALL RECEIVER FREQUENCIES WITHIN THE FREQUENCY RANGE LISTED IN THIS TABLE REQUIRE THE USE OF THE ALTERNATE 2nd LOCAL OSCILLATOR CRYSTAL FREQUENCY IN ORDER TO AVOID SELF QUIETING SPURS.

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT. ± DEC. xx± .xxx± ANGLE ±	APPROVALS DRAWN dw	DATE 10-78
			CHECKED	
		MATERIAL	QFTG SUPV	
			ENGR. Daf	10-78
	MCU 30	FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DWG.		

Regency® COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937

SELF QUIETING SPURS UHF

SIZE B PART NUMBER 304-122 REV. A

SCALE — SHEET 1 OF 1

BISHOP GRAPHICS/ACCUPRESS REORDER NO. A-2306

2-1 Receiver RF Front End, 1st Mixer and 10.7 IF

The RF amplifier stage, Q203, functions as a common gate, low noise RF amplifier and as a preselector. The amplifier is matched to a two-section helical filter on its input, L205 and L206 and on its output, L212 and L213. The signal then passes to the gate of the first mixer, Q206.

The first local oscillator (L.O.) injection frequency is at a frequency 10.7 MHz lower than the incoming signal frequency. It is obtained from a crystal oscillator-multiplier chain consisting of Q201, Q202 and Q205. The crystal oscillator, Q201, uses a third overtone crystal operating in the 48.8 to 55.7 MHz range and is followed by a buffer-amplifier stage, Q202. The signal is then tripled by the Q205 stage, filtered by the two-section helical filter, L215 and L216, and injected into the source of the J-FET mixer, Q206.

2-2 IF Audio Circuits

The output (drain) of the first mixer is a 10.7 MHz IF signal. This signal is filtered by a six-pole bandpass crystal filter (XF201, XF202 and XF203) and is amplified by the Q207 stage before passing to the second mixer (internal to IC201). The second L.O. oscillator, also contained in IC201, operates at 10.245 MHz. At those receive frequencies with a self-quieting problem with 10.245 MHz, the second L.O. frequency is moved to 11.155 MHz. The crystal frequency is stamped on top of the crystal.

The 455 KHz signal from the second mixer (IC201 Pin 3) is filtered by a 455 KHz bandpass ceramic filter (CF201). The signal is then amplified, limited and detected with a quadrature detector. The adjustable quadrature coil, L220, is across Pins 4 and 8 of IC201.

The demodulated audio signal (Pin 10 IC201) passes to both the audio amplifier circuits and to the noise-operated squelch circuit. The squelch control, R402, adjusts the signal level input to the squelch circuit. The squelch amplifier has a peak response in the 5 KHz to 20 KHz frequency range so it is the noise in this range that activates the squelch. The squelch amplifier output is rectified by CR204 and CR207 to a DC voltage at the input of the squelch switch. When the squelch is closed, this voltage is approximately 0.7 VDC, the squelch switch output is 0 VDC and the audio is squelched with Q209 (1700-7404-200) off or with Q204 (704-064 main board) off. With open squelch or with sufficient carrier present, this voltage is less than 0.7V, the switch output is 8V, Q209 or Q204 is biased active and the audio passes on to the audio amplifier IC202.

The demodulated audio signal (Pin 10 IC201) passes through the de-emphasis network (R238 and C245), Q209 or Q204, the volume control, and on to the audio amplifier IC202. The audio amplifier is capable of delivering 5W to the speaker.

2-3 Control Board Lamps

Channel Indicator:

When a particular channel is selected, the cathode of that channel's LED indicator is grounded and voltage to the LED is provided by the transceiver's supply voltage.

Transmit Indicator:

The Transmit Indicator functions similarly, except that the cathode is already grounded and voltage to the LED is provided by the transmitter supply voltage.

Pilot Lamp:

The Power Indicator is supplied current from the main A+ line and is on whenever SW3 is closed.

Call Indicator:

The Call Indicator is supplied current by the C.T.C.S.S. accessory being switched "on" to ground.

2-4 Transmitter Circuit Description

The audio circuit consists of a pre-emphasis network, limiter and post limiter filter. The input from the high impedance ceramic microphone is both pre-emphasized and amplified by the operational amplifier circuit of IC301A. The limiter, diodes CR303 and CR305 (main board 1700-7404-200) or transistors Q307 and Q308 (main board 704-064), limits the output voltage and prevents over-deviation of the transmitter. The operational amplifier circuit of IC301B is a low pass filter and amplifier. The signal amplitude is adjusted by R328, the deviation control, before passing to the modulator.

The crystal oscillator circuit, Q301, operates at 1/36 the channel frequency, 12.5 to 14.3 MHz. The oscillator frequency is frequency modulated by a varactor diode, CR301A or CR301B, etc. depending on the model and the channel selected.

The collector output of the oscillator is tuned to the third harmonic of the crystal frequency and is amplified by the buffer, Q302. The signal is then frequency multiplied by a tripler circuit, Q303, a doubler circuit, Q304, and another doubler circuit, Q305, to reach the 450-512 MHz range. The 1700-7404-200 main board has another amplifier stage, Q306. The power output of either main board, 1700-7404-200 or 704-064, is 500mw minimum and is sufficient to drive the power amplifier.

The power amplifier in the MICRO COM U03 series is Q103 and is capable of at least 2W of output power. This amplifier requires no VSWR protection circuitry.

The power amplifier chain in the MICRO COM U15 transceiver series consists of Q103 and Q104 and is capable of 15W of output power. The final device, Q104, is VSWR protected.

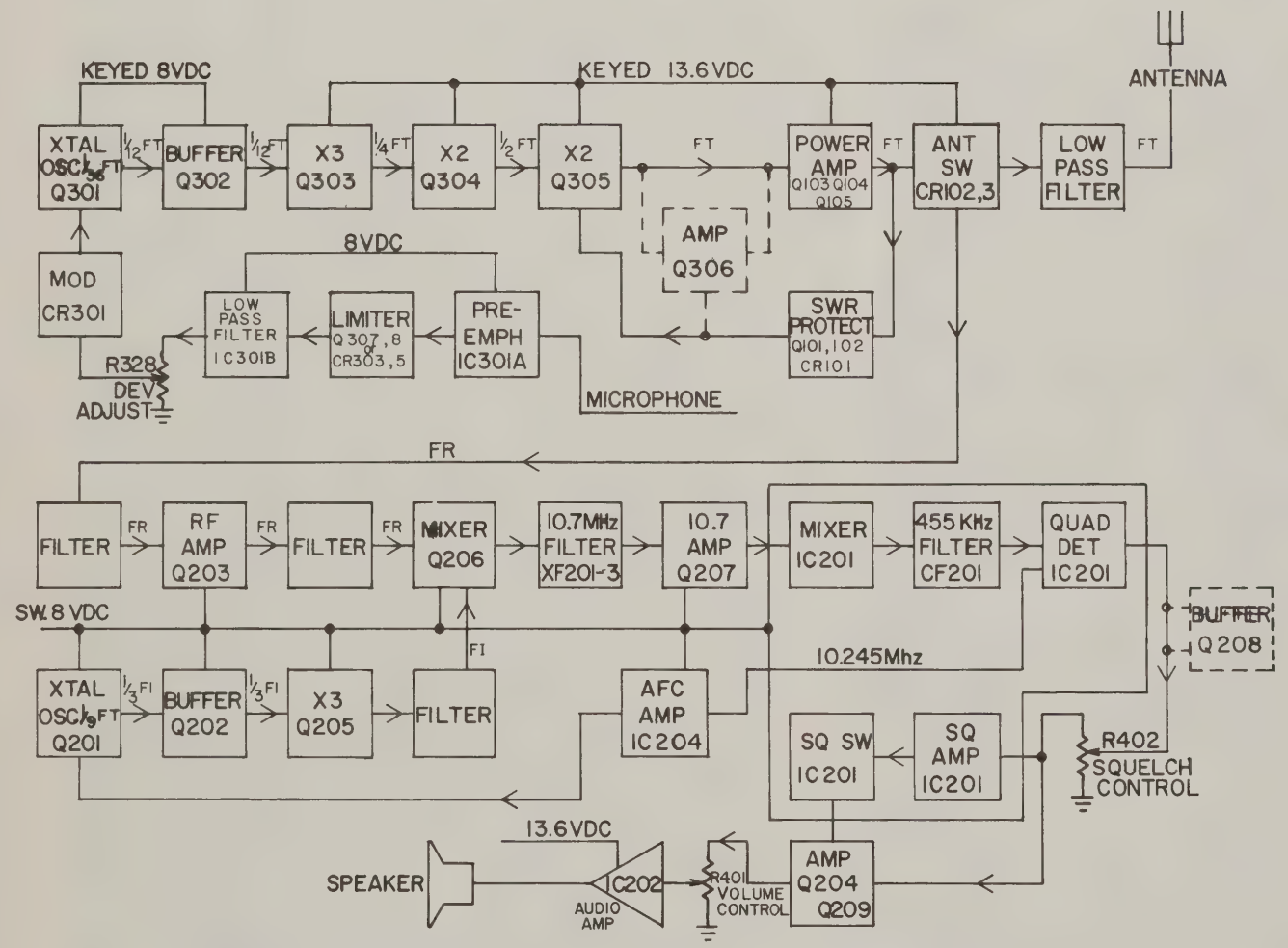
The power amplifier chain in the MICRO COM U30 transceiver consists of Q103, Q104 and Q105 and is capable of 35W of output power. The final device, Q105, is VSWR protected.

The VSWR protection circuit senses the reflected power at the antenna port due to any antenna mismatch. The sensed reflected power is converted to a DC control voltage which is fed back to the output transistor in the exciter, Q306 on main board 1700-7404-200 or Q305 on main board 704-064. Any reduction in the control voltage results in less drive to the power amplifier and thus less RF output power. A directional coupler, formed by R102, R104 and the plating run between them, senses the reflected power. The signal is rectified by CR103 and is amplified to the control voltage by Q101 and Q102.

A transmit-receive switch consisting of PIN diodes CR101 and CR102, the plating run between them, and their bias circuitry switches the antenna between the receiver input and the transmitter output. The push-to-talk (PTT) switch in the microphone, when depressed, grounds the relay coil, RY301, which switches the 13.6 VDC and 8 VDC from the receive mode to the transmit mode.

MICRO COM SERIES 2-5 BLOCK DIAGRAM

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	R-393 DCD 9-80	9-10-80	Daj



TRANSMITTER & RECEIVER BLOCK DIAGRAM MICROCOM U30 SERIES

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT. DEC. ANGLE ± .xx± ± .xxx±	APPROVALS	DATE
			DRAWN DCD	9/80
			CHECKED	
			OPTG. SUPV.	
		MATERIAL	ENGR. DAJ	9/80
	MICROCOM U30	FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DWG.		

Regency COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937

BLOCK DIAGRAM

SIZE C | PART NUMBER 504-434 | REV. A

SCALE 2-1 | SHEET 1 OF 1

504-434 ON DWG

SECTION 3 ALIGNMENT AND TUNING PROCEDURES

APPLICATION	
NEXT ASSY	USED ON

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	R-050	9/8/78	DAJ
B	ENAA553	12/4/78	DAJ
C	ENAA919	2/1/80	DAJ
D	ENAB059	2/19/80	DAJ

REV D | SH 1 | DWG. NO. TP-14-154

FINAL TEST PROCEDURE - MICRO COM U30, U15 and U03 SERIES

I. TEST SET-UP

A. Equipment

1. MICRO COM U30 Transceiver
2. HP 410 DC VTVM
3. DC Power Supply with Ammeter 13.6 VDC 15 Amps DC
4. VOM Simpson 360 (Digital)
5. AC VTVM
6. Audio Oscillator
7. Mic Matching Network
8. 450 MHz Thruline Wattmeter, 30dB Power Pad and 50W Element
9. Spectrum Analyzer
10. Deviation Meter*
11. Frequency Counter*
12. Small Blade Tuning Took and Hex Tuning Tool
13. Tune-Up Crystal
14. Band Reject Filter
15. PTT Switch

*Can be replaced with Cushman or similar equipment.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE	APPROVALS	DATE
FRACT. ± DEC .XX± .XXX± ANG. ±	DRAWN GM	2/22/80
	CHECKED	
	DFTG. SUPV.	
MATERIAL	ENGR. DAJ	12-4-78
FINISH		
DO NOT SCALE DRWG.		

Regency® COMMUNICATIONS INC.
SATELLITE BEACH, FLORIDA 32937

TEST PROCEDURE MICRO COM U30, U15, U03

SIZE	PART NUMBER	REV.
A	TP-14-154	D

SCALE | SHEET 1 OF 12

B. Test Interconnection Diagram

Transmitter Tests

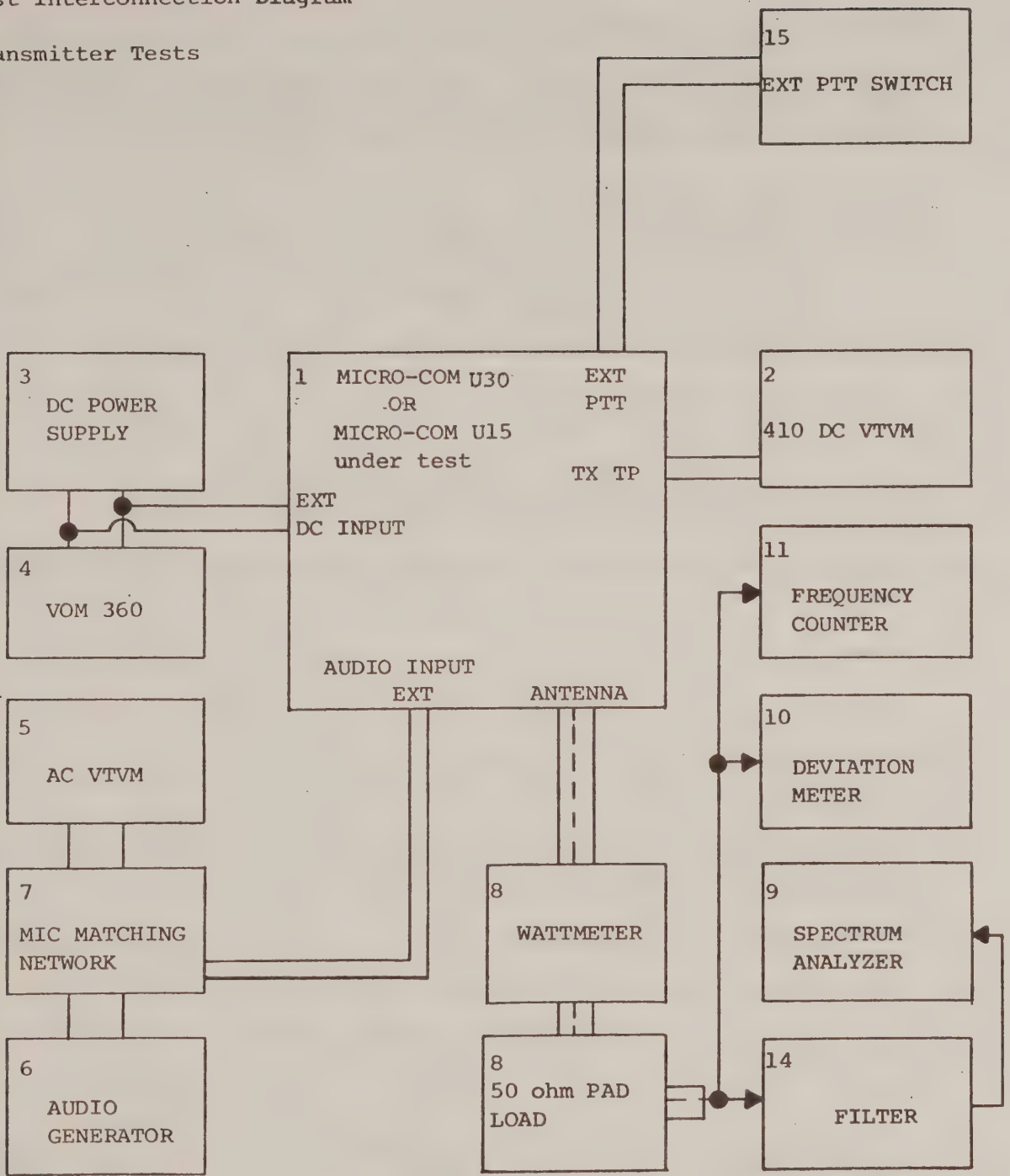


FIGURE 1

DRAWN MF/WJM	DATE 9-1-78	SIZE A	PART NUMBER TP-14-154	REV. D
APPROVED DAD	DATE 9-13-78			
DO NOT SCALE DWG.		SCALE –		SHEET 2

II. TRANSMITTER SET-UP INSTRUCTIONS

A. Determine main board number. The number appears on the solder side of the board just below the Regency logo. The board number is important only for tuning the exciter for maximum output power.

1. If board 1700-7404-200:

   a. Follow set-up instructions B,C,D,E,F and G.
   b. Preset C346 and C349 for minimum capacitance. Preset C351 and C355 at half maximum capacitance. Preset C358 for maximum capacitance (see Fig. 2).
   c. Follow the transmitter tune-up instructions of III.

2. If board 704-064[illegible]-400:

   a. Follow set-up instructions B,C,D,E,F and G.
   b. Preset C348 for maximum capacitance (see Fig. 2)
   c. Follow the transmitter tune-up instructions of IV.

B. Insert tune-up crystal in F1 position. The tune-up crystal is selected as follows:

Freq. Range	450-475 MHz	475-512 MHz
Frequency	462 MHz	492 MHz

C. Insert external power connector and set power supply (3) to 13.6 VDC as indicated on VOM (4).

D. Connect wattmeter, 30 dB attenuator (8), band reject filter (14) and spectrum analyzer (9) to antenna connector.

E. Insert external PTT connector (15).

F. On 4 channel models, set frequency selector to F1.

G. Turn on the radio with the ON/OFF volume switch.

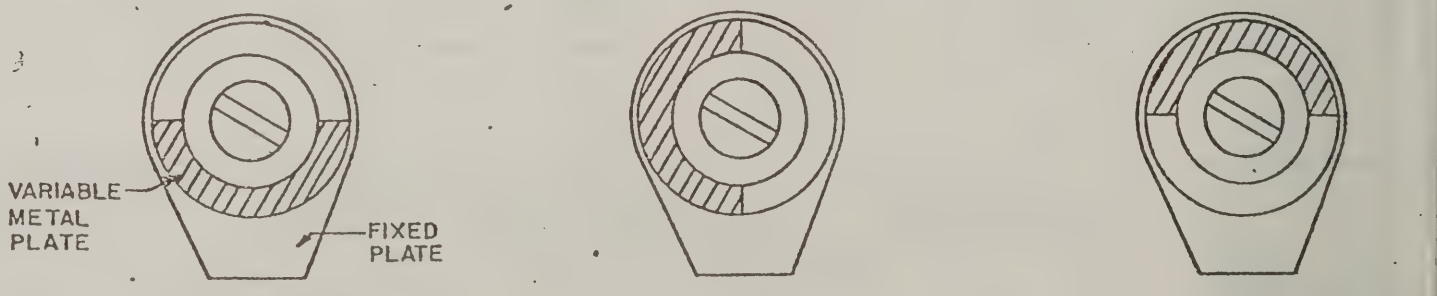


FIGURE 2

DRAWN	DATE	SIZE	PART NUMBER	R
APPROVED	DATE	A	TP-14-154	
DO NOT SCALE DWG		SCALE		SHEE

ISS. 3 MAD
TP-15-154
DWG. NO.

III. TRANSMITTER TUNING PROCEDURE FOR MAIN BOARD 1700-7404-200

A. VTVM Metering - Set VTVM (2) on 1.5V scale. All voltage readings are referenced to chassis ground. Key transmitter with external PTT and key only when measuring or tuning.

1. Monitor M1. Tune L304 and L305 for minimum positive voltage. Voltage should be 0.1V to 0.45V. A reading of 0.5V indicates oscillator, Q301, is not oscillating.
2. Monotor M2. Tune L307 and L308 for minimum positive voltage. To find the dip, set coil forms even and tune by alternating one turn on each coil. Voltage should be 0V to 0.2V. A reading of 0.3V indicates no drive to Q303.
3. Monitor M3. Tune L310, L311 and L312 for minimum voltage. Voltage should be +0V to -0.2V. A reading of 0.3V indicates no drive to Q304.
4. Monitor M4. Tune L314 and L315 for maximum negative voltage. Voltage should be -0.35V to -0.5V. A reading of 0V indicates no drive to Q305.
5. Monitor M5. First tune C346 for maximum negative voltage. Then tune C349, C351 and C355 for maximum negative voltage. Voltage should be -0.7V to -1.0V. A reading 0V indicates no drive to Q306.

B. Tuning Adjustments While Monitoring Power Output

1. In the MCU-30 tune C358 on the main board and C112, C131, C132, C121 and C133 on the power amplifier for maximum power out as measured on the wattmeter (8). Power should exceed 35W. Current delivered to the transceiver from the power supply (3) should be less than 13A.
2. In the MCU-15 tune C358 on the main board and C112, C131 and C133 on the power amplifier for maximum power out. Power should exceed 15W and the current from the power supply should be less than 7A.

C. On 4 channel models, if channel spacing exceeds 1.5 MHz refer to the broad band tuning procedure, TP-14-155.

D. Table of Performance Limits - 1700-7404-200

TEST POINT	MIN	TYP	MAX	UNITS
M1	.1	+.30	+.45	VDC
M2	0	+.1	+.20	VDC
M3	0	+.1	+.20	VDC
M4	-.6	-.4	-.35	VDC
M5		-.8	-.7	VDC

E. Continue with the common transmitter set-up instructions of Section V and the receiver alignment instructions.

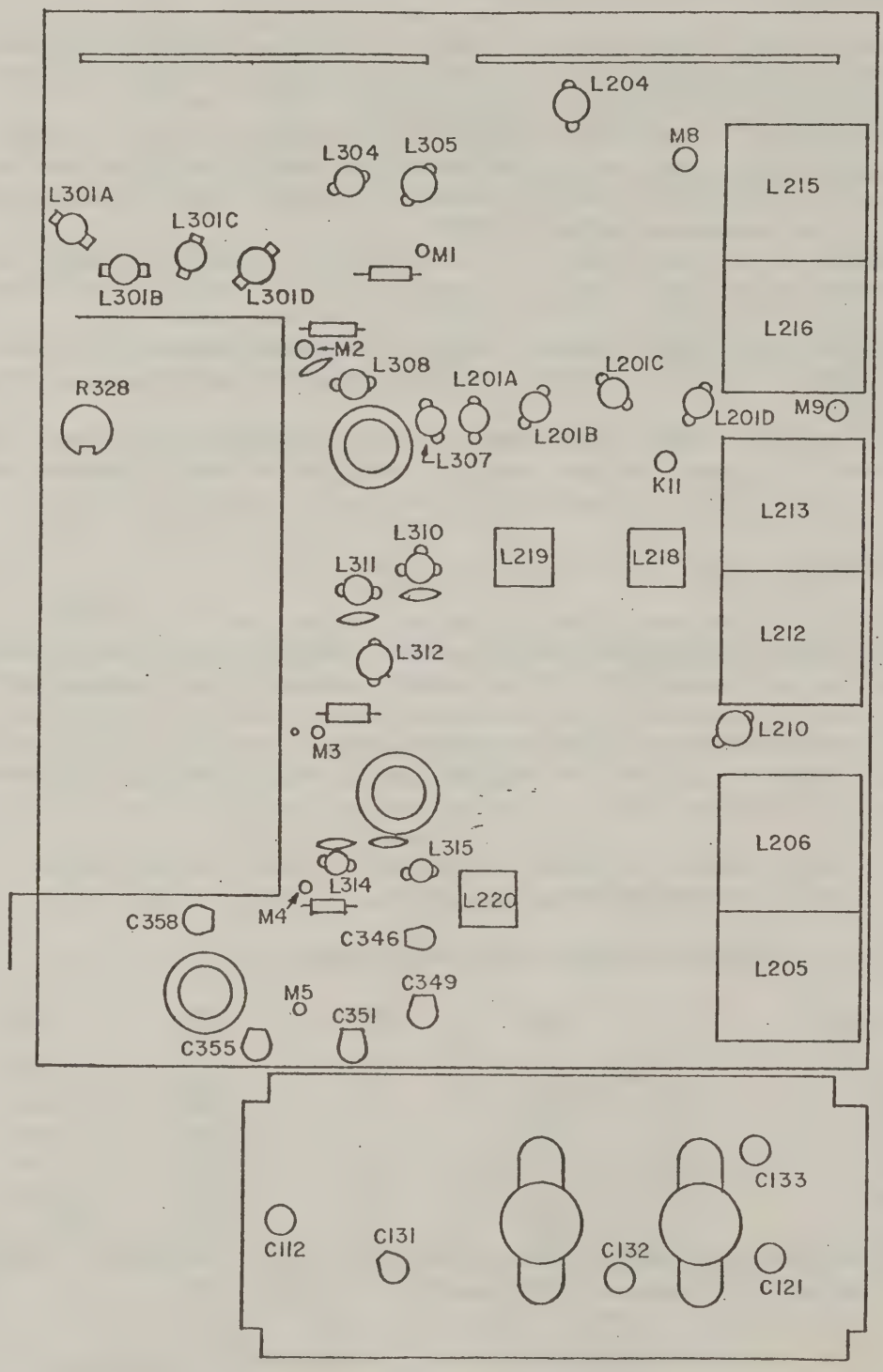


FIGURE 3. TRANSMITTER, RECEIVER AND POWER AMPLIFIER TUNING POINTS

1700-7404-200

DRAWN MF/WJM	DATE 9-1-78	SIZE A	PART NUMBER TP-14-154	REV. D
APPROVED Dag	DATE 9-13-78			
DO NOT SCALE DWG.		SCALE —		SHEET 5

IV. TRANSMITTER TUNING PROCEDURE FOR MAIN BOARD - 704-064

A. VTVM Metering - Metering point M1 must be referenced to ground, but metering points M2 through M4 may be referenced to ground or to 13.6V. Key transmitter with external PTT and key only when measuring or tuning.

1. Monitor M1. Tune L304 and L305 for minimum positive voltage. A reading of 2.1V indicates oscillator, Q301, is not oscillating.

   The following metering points will be described referenced to 13.6 VDC. The VTVM is set in the -DCV position and all test points are peaked. To reference to ground, set the VTVM in the -DCV position and dip all test points. Either way the voltage difference between tuned and not tuned will be identical.

2. Monitor M2. Alternately tune L305 and L307 for maximum negative voltage. Tune L310 for a minimum. Voltage should be -2.5V to -3.0V. A reading of 0V indicates Q303 stage has no output.

3. Monitor M3. First tune L312 for maximum negative voltage, then tune L311. Tune L316 for a minimum. Voltage should read -3.5V to -5.0V when tuned. A reading of 0V indicates Q304 stage has no output.

4. Monitor M4. Tune L316 for maximum negative voltage, then tune L317 for maximum negative voltage. Voltage should read -2.5 VDC. A reading of 0V indicates Q305 stage has no output. Tune C348 for minimum negative voltage at M4. Voltage dip should be to -1.5 VDC.

B. Tuning Adjustments While Monitoring Power Output

1. In the MCU-30 tune C112, C131, C132, C121 and C133 on the power amplifier for maximum power out as measured on the wattmeter (8). Power should exceed 35W. Current delivered to the transceiver from the power supply (3) should be less than 13A.

2. In the MCU-15 tune C112, C131 and C133 on the power amplifier for maximum power out. Power should exceed 15W and the current from the power supply should be less than 7A.

3. On both MCU-15 and MCU-30 adjust L316, L317 and C348 for maximum power out.

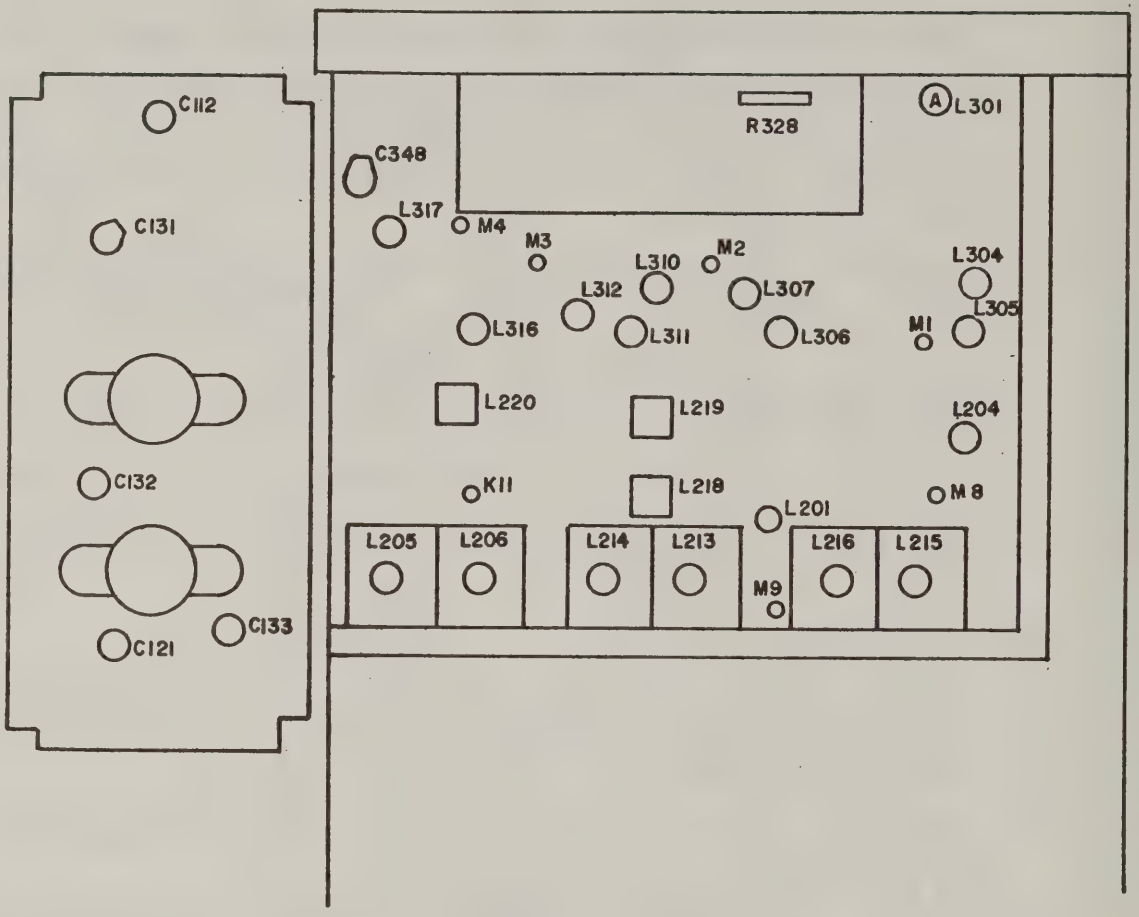
4. In the MCU-03 tune C112 and C132 on the power amplifier for maximum power out. Power should exceed 2 watts and the current drawn from power supply should be less than 2A. Where 2W is the maximum allowable power, adjust L317 for 2W.

C. On 4 channel models, if channel spacing exceeds 1.5 MHz refer to the broad band tuning procedure, TP-14-272.

D. Table of Performance Limits 1700-7406-400

TEST POINT	MIN	TYP	MAX	UNITS
M1	+2.0	+1.8	+1.6	VDC
M2	-2.0	-2.5	-3.5	VDC
M3	-3.0	-3.5	-5	VDC
M4	-1.0	-1.5	-2	VDC

E. Continue with the common transmitter set-up instructions of Section V and the receiver alignment instructions.



NOTES

1. REFER TO PARTS PLACEMENT DWG FOR TUNING POINT LOCATIONS.
2. REF. P.C. BOARD 704-064.

FIGURE 3 - TRANSMITTER, RECEIVER AND POWER AMPLIFIER TUNING POINTS

704-064

DRAWN CM=C	DATE 12-79	SIZE A	PART NUMBER TP-14-154	REV. D
APPROVED Daf	DATE 2-1-80			
DO NOT SCALE DWG.		SCALE —		SHEET 7

V. COMMON TRANSMITTER SET-UP INSTRUCTIONS

A. Connect counter (11) to the output of the 30dB attenuator (8) and set the F1 warp control, L301A, to the nominal crystal frequency ±100 Hz.

B. Conducted spurious emissions measurement. Tune band reject filter (14) so that the carrier is not notched and set the spectrum analyzer (0) carrier indication to the 0dB reference line. Tune the band reject filter to attenuate the carrier at least 30dB. In the MCU-30 all harmonics should be 59dB or more lower than the reference, in the MCU-15 56dB.

C. Deviation Adjustment

1. Connect audio generator (6) to microphone input. Set the generator for 1 KHz at 1 VAC. Connect the deviation meter (10) to the attenuator (9) output.

2. Key the transmitter and adjust R328 for ±5 KHz deviation as measured on the meter.

D. Check the modulation sensitivity by reducing the audio generator output until the deviation is ±3 KHz. The measured generator output on the AC VTVM (5) should be less than 20mv rms.

E. On 4 channel models reconnect the counter (11) to attenuator (8). Insert the crystal in each channel. All channels must be capable of being warped on frequency ±100 Hz. Repeat C.1 and monitor deviation meter (10) on each channel. Deviation should be ± 4.5 KHz, ±500 Hz.

F. Crystal heater circuit check. At room temperature (25°C or 72°F) the voltage at the collector of Q307 should be no lower than 13.0V. When RT301 is cooled below 0°C(32°F) and when DC power is initially applied to the transceiver the collector should drop to a maximum voltage of 7 VDC as measured on VTVM (2).

G. Table of Common Transmitter Performance Limits

PARAMETER	MIN	TYP	MAX	UNITS
Deviation	-	-	±5.0	KHz
Mic Mod Sens	-	10	20	mVAC
Collector Q307 at 0°C	-	2.5	7.0	VDC
MCU-30				
TX Power Output	35	40	50	W
DC Current	8	20	13	A
MCU-15				
TX Power Output	15	20	25	W
DC Current	3.5	5	7	A
MCU-03				
TX Power Output	2		2.5	W
DC Current	1.2	1.5	2	A

RECEIVER ALIGNMENT

I. TEST SET UP

A. Equipment

1. MICRO-COM U30 Transceiver
2. UHF-FM Signal Generator*
3. AC VTVM
4. DC Power Supply
5. DC VTVM or VOM
6. VOM - Simpson 360 (Digital)
7. Hex Tuning Tool
8. Small Blade Screwdriver
9. Small Blade Tuning Tool
10. 10.7 MHz Oscillator
11. Frequency Counter*
12. Sub-Audible Tone Generator
13. Tune-Up Crystal
14. Audio Oscilloscope
15. 3.2 ohm Speaker Load
16. Sinadder or Distortion Meter with 1000 Hz Band Elimination Filter

*Can be replaced with Cushman or similar equipment

B. Test Interconnection Diagram

Receiver Alignment

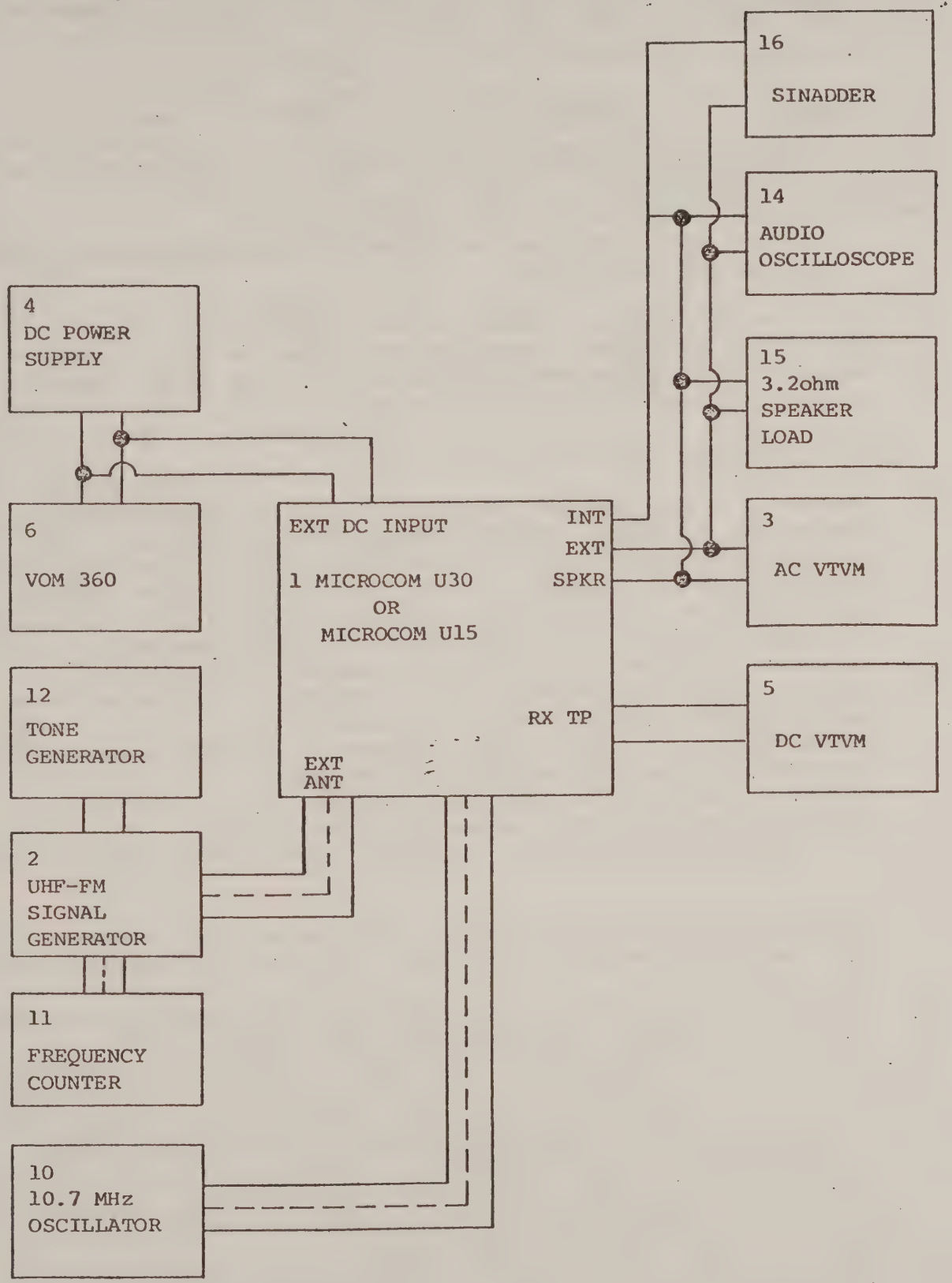


FIGURE 4

DRAWN MF/WJM	DATE 9-1-78	SIZE A	PART NUMBER TP-14-154	REV. D
APPROVED [illegible]	DATE 9-13-79			
DO NOT SCALE DWG.		SCALE —		SHEET 10

II. TEST SET-UP INSTRUCTIONS

A. Set DC voltage to 13.8 VDC as measured on VOM(6).
B. Insert tune-up crystal in F1 position. The crystal is selected as follows:

Freq Range	450-476 MHz	470-512 MHz
Frequency	462 MHz	492 MHz

C. Set UHF-FM signal generator(2) to tune-up crystal frequency as measured on frequency counter(9).
D. 1. Set squelch control (R402) fully clockwise.
   2. On tone units, set tone monitor switch to monitor position or unground microphone hangup button.

E. In 4 channel units set channel selector to F1.
F. Preset L210 as follows: above 465 MHz, screw the slug all the way into the coil; below 465 MHz screw the slug out to the top of the coil.
G. Turn on radio with ON/OFF Volume Switch.

III. RECEIVER ALIGNMENT PROCEDURE

A. Connect AC VTVM(3) across the speaker load and adjust the ON-OFF Volume Control for a readable VTVM(3) reading on the 1 VAC scale.
B. Monitor K11 with DC VTVM(5). Inject strong 10.700 MHz signal into the vicinity of L319 and Q207. Set K11 to 3.5 VDC by adjusting L220.
C. Monitor M8 with the DC VTVM(5). Adjust L204 for minimum voltage at M8. A voltage dip of 0.05V from the oscillator off to the oscillator on should be observed. A reading of 0.6 VDC indicates no drive to Q205.
D. Modulate signal generator(2) with a 1 KHz tone at ±3 KHz deviation. Increase generator output for 6dB SINAD on sinadder(16).
E. Adjust L205, L206, L212 and L213 for best 12 dB SINAD by constantly reducing the signal generator(2) output for 12 dB SINAD.
F. Adjust L215 and L216 for best 12 dB SINAD.
G. Monitor K11 with DC VTVM. Adjust L201A to 3.5V.
H. Increase deviation to ±6 KHz. Adjust L218 and L219 for best 12 dB SINAD.

J. Set the signal generator(2) for a 1 KHz tone at ±3 KHz deviation. Adjust the generator output for 12 dB SINAD. The generator should read no more than .35 uv.
K. Increase the signal generator(2) output to 100 uv and turn the volume control, R403, to full volume. The AC VTVM(3) should exceed 4.0 VAC.
L. Set the signal generator(2) to -130 dBm and remove the modulation. Set AC VTVM(3) to the 1V scale and use the volume control to set voltage to 1.0 VAC. Increase the signal generator output until the AC VTVM reads 0.1 VAC. This is 20 dB quieting and the generator should read less than 0.5uv.
M. Set the signal generator(2) output to -130 dBm. Set the squelch control, R402, to threshold, just quieting the receiver noise. Increase the signal generator output until noise appears. This is threshold squelch and the generator should read less then .25uv.
N. Turn the squelch control fully counterclockwise. Increase the signal generator output until the squelch opens. This is tight squelch and the generator should read less than 0.7uv.

III. RECEIVER ALIGNMENT PROCEDURE (cont.)

O. Monitor K11 with DC VTVM(5) set on 10V scale. Set signal generator(2) for 100uv and offset the frequency +3.0 KHz from the crystal frequency. Voltage at K11 should increase from 3.5 VDC on frequency to at least 4.5 VDC with +3.0 KHz offset.

P. On 4 channel models, the tuning should be done on a center frequency. It may be necessary to adjust L205, L206, L212, L213, L215 and L216 for best sensitivity on the highest frequency and the lowest frequency. If frequency spacing exceeds 1.5 MHz refer to 304-116 for sensitivity degradation. To net F2, F3 and F4 repeat steps G and J adjusting L201B, L201C and L201D.

IV. TABLE OF PERFORMANCE LIMITS

PARAMETER	MIN	TYP	MAX	UNITS
M8	-	.5	.55	VDC
12 dB SINAD	-	.3	.35	uv
20 dBQ	-	.4	.5	uv
Threshold Squelch	-	.2	.25	uv
Tight Squelch	-	.55	.7	uv
Audio Output 1 KHz Tone 3 KHz Dev	4.0	4.2	-	VAC
Noise Output	4.0	4.2	-	VAC
K11 +3 KHz offset	4.5	6.0	-	VDC

APPLICATION	
NEXT ASSY	USED ON
	MCU-30

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	R-050	9-13-78	DAJ
B	ENAB-080	3-4-80	Daj

REV B | SH 1 | DWG. NO. TP 14-155

TEST PROCEDURE: MCU-30 TRANSMITTER TUNING (DOUBLE TUNED)
MAIN BOARD - 1700-6404-200 ONLY

The broadband tuning procedure is required only if the difference between the highest frequency and the lowest frequency exceeds 1.5MHz. After the transmitter has been center tuned per TP 14-154 the following steps are performed to broadband the transmitter. The equipment set-up is identical to that of Fig 1 TP14-154.

1. Monitor M1 with VTVM(2) on +1.5 VDC scale.
2. Set the frequency selector to the channel with the lowest frequency. Note voltage reading on VTVM.
3. Set the frequency selector to the channel with the highest frequency. Note VTVM reading.
4. Tune L304 and L305 such that the voltage reading at M1 is as low as possible for both the highest frequency and the lowest frequency. The voltage should be less than .5VDC.
5. Monitor M2. Repeat steps 2 and 3. Tune L307 and L308 for minimum positive voltage such that the M2 voltage is the same at the highest frequency and at the lowest frequency. Voltage should be less than .2VDC.
6. Monitor M3, Repeat steps 2 and 3. If necessary, tune L310, L311 and L312 for minimum voltage at both the highest frequency and the lowest frequency. Voltage should be less than .2VDC.
7. Monitor M4. Repeat steps 2 and 3. If necessary tune L314 and L315 for maximum negative voltage at both the highest frequency and the lowest frequency. Voltage should be less than -.3VDC.
8. Monitor M5. Repeat steps 2 and 3. If necessary, tune C346, C349, C351 and C355 for maximum negative voltage at both the highest frequency and the lowest frequency. Voltage should be less than -.7VDC.
9. If necessary tune C358 for maximum power output on wattmeter (8).
10. For transmitter power output performance degradation refer to 304-115.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE
FRACT. ± DEC .XX± .XXX± ANG. ±

MATERIAL

FINISH

DO NOT SCALE DRWG.

APPROVALS	DATE
DRAWN EM	9-13-78
CHECKED	
DFTG. SUPV.	
ENGR. Daj	9-13

Regency® COMMUNICATIONS INC.
SATELLITE BEACH, FLORIDA 32937

TEST PROCEDURE: MCU-30 Transmitter Tuning (double tuned)

APPLIES TO MAIN BOARD 1700-7404-200 ONLY

SIZE	PART NUMBER	REV.
A	TP 14-155	B

SCALE —

SHEET 1 OF 1

APPLICATION	
NEXT ASSY	USED ON

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	R-221	2-1-80	Daf
B	EN-AB177	6-16-80	H. Edwards

REV A SH 1 DWG. NO. TP-14-272

TEST PROCEDURE: MCU-30 TRANSMITTER TUNING (DOUBLE TUNED)

The broadband tuning procedure is required only if the difference between the highest frequency and the lowest frequency exceeds 1.5 MHz. After the transmitter has been center tuned per TP-14-154* the following steps are performed to broadband the transmitter. The equipment set-up is identical to that of Fig. 1, TP-14-154*. All metering voltages are referenced to 13.6 VDC.

1. Monitor M2 with VTVM(2) on -10 VDC scale.
2. Set the frequency selector to the channel with the lowest frequency. Note voltage reading on VTVM.
3. Set the frequency selector to the channel with the highest frequency. Note VTVM reading.
4. Tune L305 and L307 such that the voltage reading at M2 is the same at both the highest frequency and the lowest frequency.
5. Monitor M3. Repeat steps 2 and 3. Tune L310, L311 and L312 for maximum negative voltage at both the highest frequency and the lowest frequency. Voltage should be at least -3.0 VDC.
6. Monitor M4. Repeat steps 2 and 3. Tune L316 for maximum negative voltage at both the highest frequency and the lowest frequency. Voltage should be about -1.0 VDC.
7. Monitor RF output on wattmeter. Repeat steps 2 and 3. Tune L317 and C348 for maximum power out at both the highest frequency and the lowest frequency.
8. For transmitter power output performance degradation refer to 304-115.

*This tuning procedure is also used for broadband tuning of the MICRO COM Base Stations MCBU-35 and MCBU-19 (Test Procedure TP-14-273).

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE
FRACT. ± DEC .XX± .XXX± ANG. ±

MATERIAL

FINISH

DO NOT SCALE DRWG.

APPROVALS	DATE
DRAWN Ym	2-1-80
CHECKED	
DFTG. SUPV.	
ENGR. Daf	2-1-80

Regency® COMMUNICATIONS INC.
SATELLITE BEACH, FLORIDA 32937

TEST PROCEDURE: MCU-30 TRANSMITTER TUNING (DOUBLE TUNED)
APPLIES TO MAIN BD. 704-064 ONLY

SIZE	PART NUMBER	REV.
A	TP-14-272	B

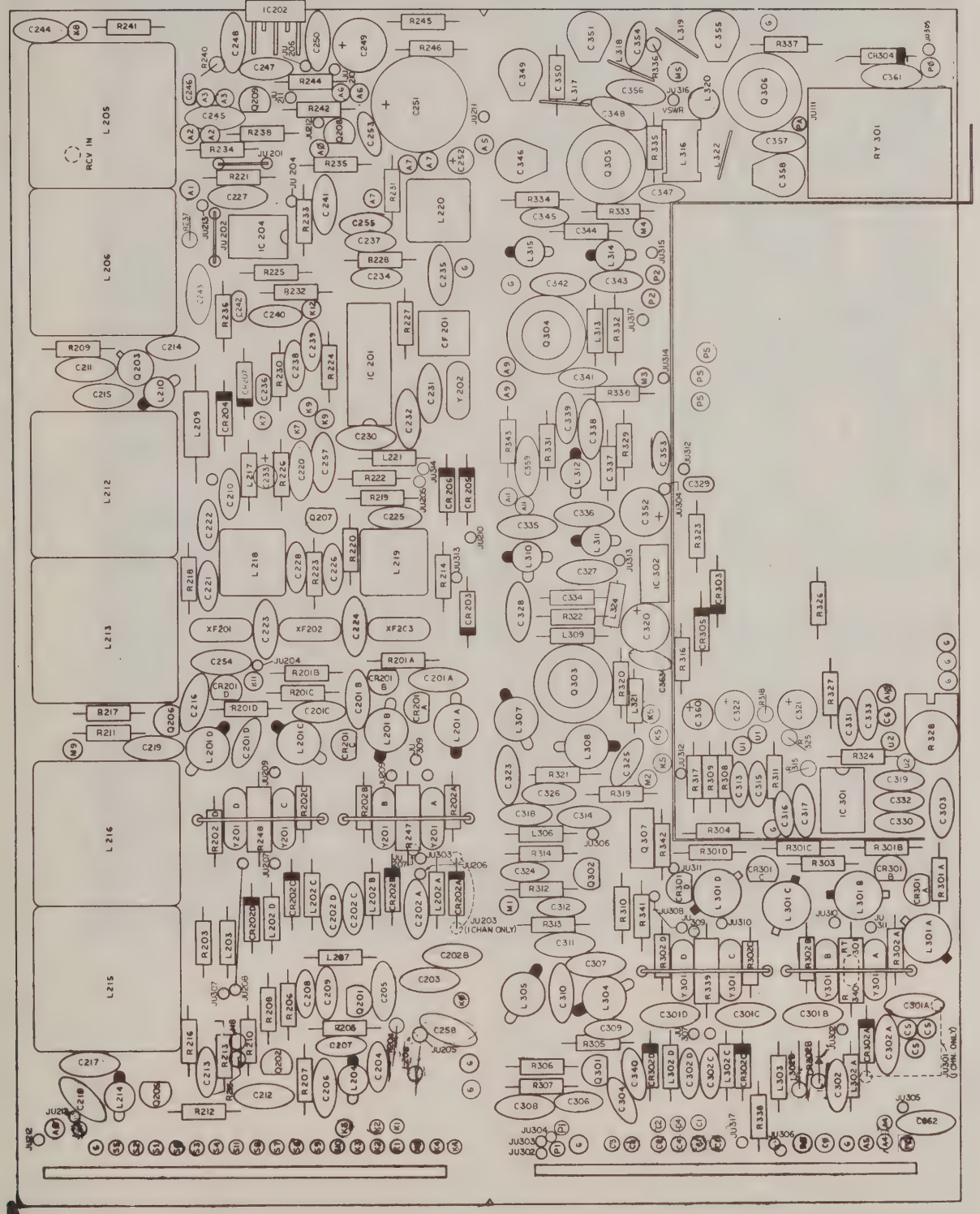
SCALE

SHEET 1 OF 1

SECTION 4 MAIN BOARD 1700-7404-200

MCU 30
MAIN BOARD

704-042

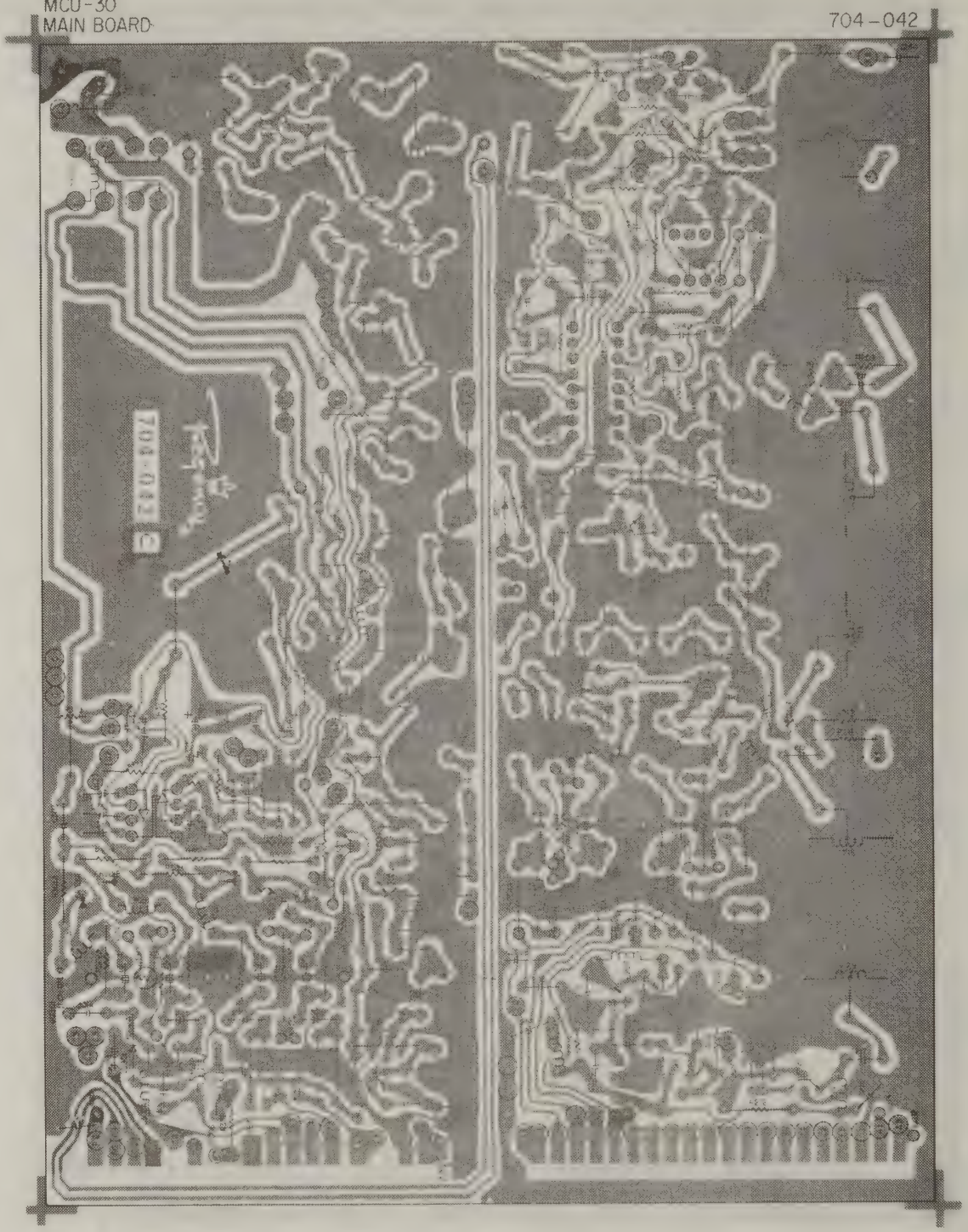


4-1 MAIN BOARD-1700-7404-200

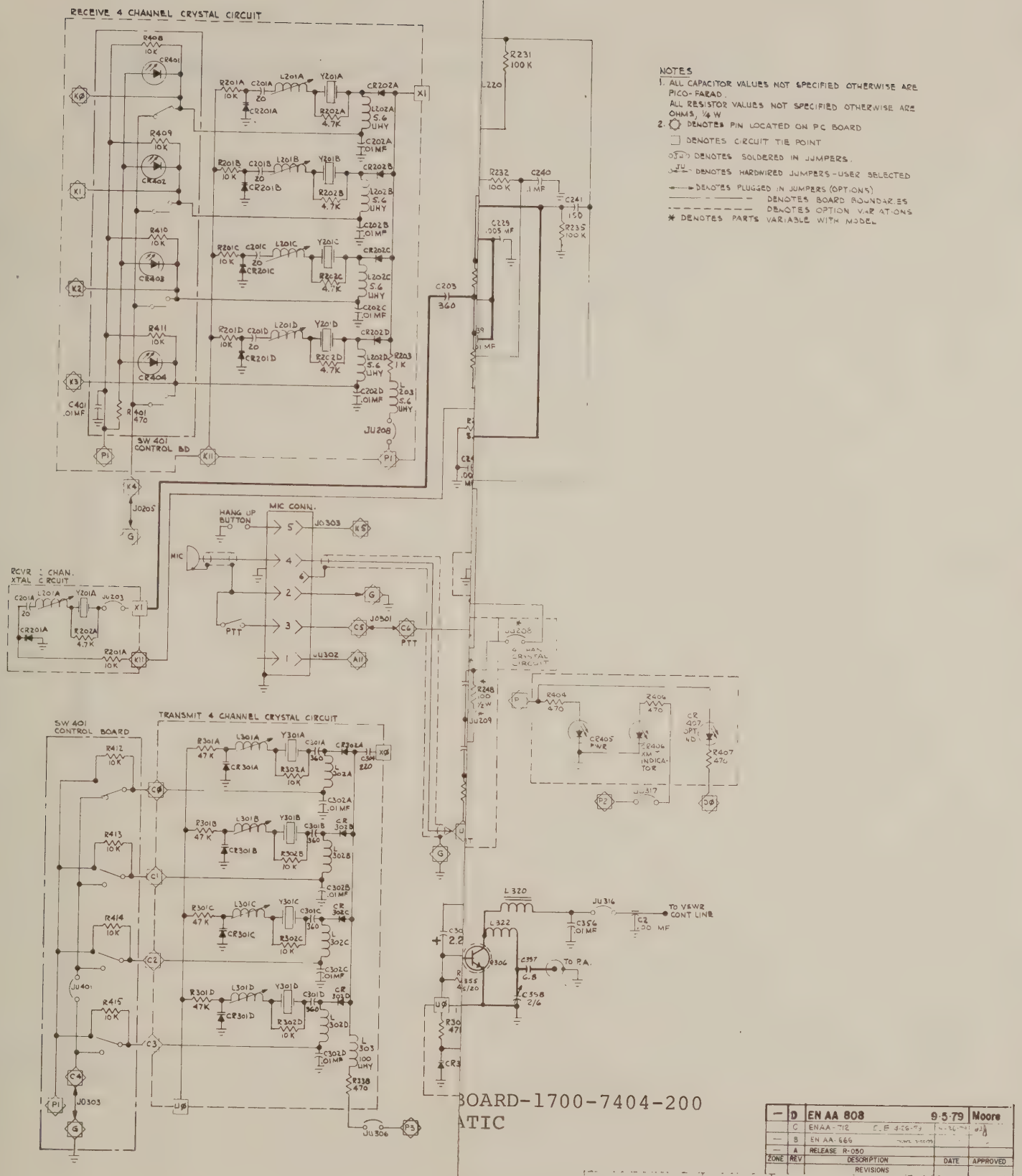
PARTS PLACEMENT

MCU-30
MAIN BOARD

704-042



4-2 MAIN BOARD-1700-7404-200
PARTS OVERLAY


RECEIVE 4 CHANNEL CRYSTAL CIRCUIT
SW 401 CONTROL BD
MIC CONN.
HANG UP BUTTON
MIC
PTT
RCVR 1 CHAN. XTAL CIRCUIT
TRANSMIT 4 CHANNEL CRYSTAL CIRCUIT
SW 401 CONTROL BOARD
TO PA.
TO VSWR CONT LINE
NOTES
1. ALL CAPACITOR VALUES NOT SPECIFIED OTHERWISE ARE PICO-FARAD.
ALL RESISTOR VALUES NOT SPECIFIED OTHERWISE ARE OHMS, 1/4 W
2. DENOTES PIN LOCATED ON P.C. BOARD
DENOTES CIRCUIT TIE POINT
DENOTES SOLDERED IN JUMPERS.
DENOTES HARDWIRED JUMPERS - USER SELECTED
DENOTES PLUGGED IN JUMPERS (OPTIONS)
DENOTES BOARD BOUNDARIES
DENOTES OPTION VARIATIONS
* DENOTES PARTS VARIABLE WITH MODEL

BOARD-1700-7404-200
ATIC

ZONE	REV	DESCRIPTION	DATE	APPROVED
	D	EN AA 808	9-5-79	Moore
	C	EN AA-712		
	B	EN AA-666		
	A	RELEASE R-050		

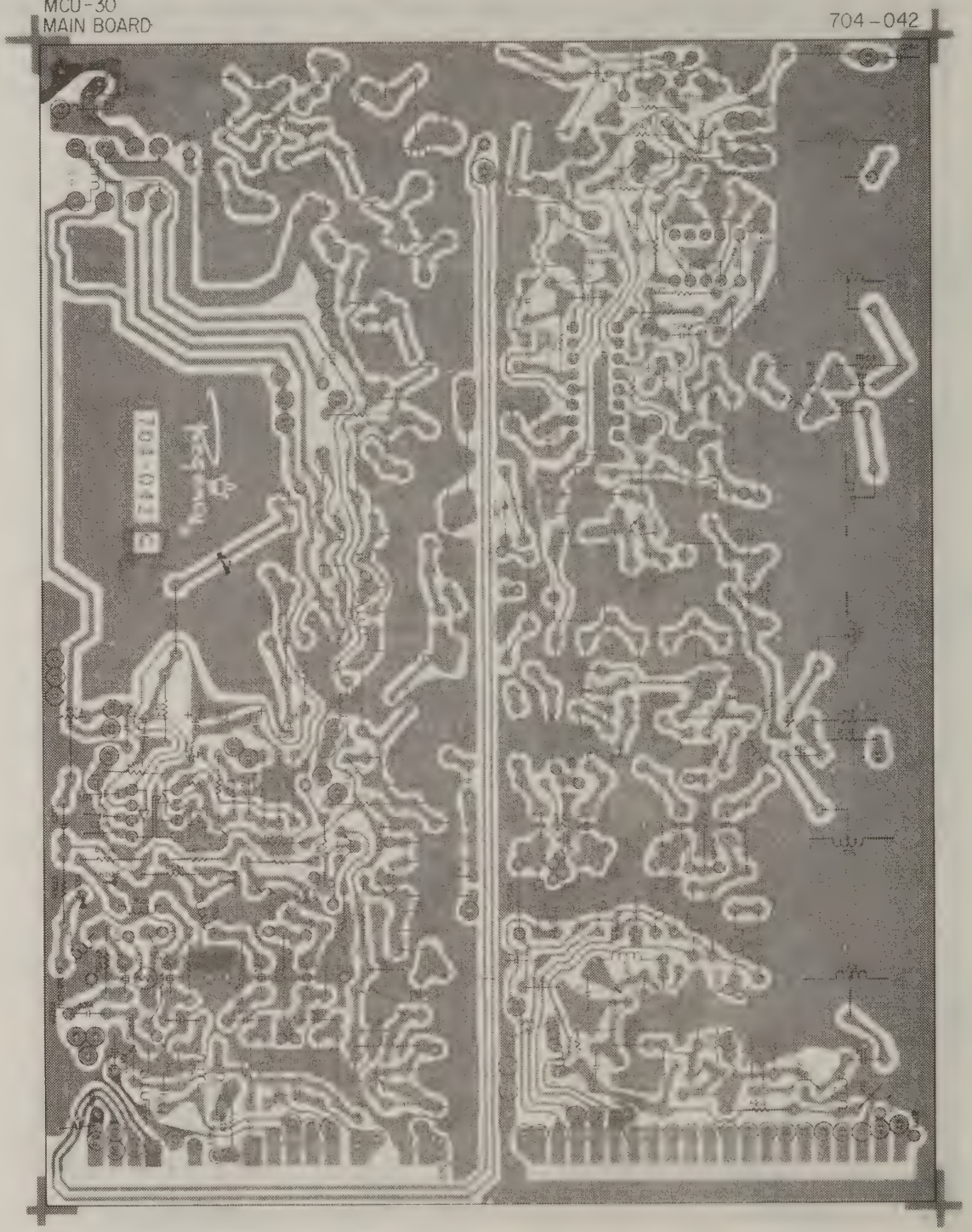
REVISIONS

SCHEMATIC
MAIN BOARD
704-038 D

IC 301
1 4.02
2 4.06
3 4.06
4 0
5 4.05
6 4.06
7 4.15
8 8.00

MCU-30
MAIN BOARD

704-042



4-2 MAIN BOARD-1700-7404-200
PARTS OVERLAY

RECEIVE 4 CHANNEL CRYSTAL CIRCUIT

RC/R 1 CHAN. XTAL CIRCUIT

TRANSMIT 4 CHANNEL CRYSTAL CIRCUIT

SW 401 CONTROL BD

SW 40 CONTROL BOARD

MIC CONN.

HANG UP BUTTON

MIC

PTT

CONT BD

IC 201

IC 202

IC 301

IC 302

OSC

MIXER 455 KHZ

DEMOD

AMP

SQUELCH SWITCH

FILTER CF 201 455 KHz

RY 301

CRYSTAL WARMER CIRCUIT

4 CHAN CRYSTAL CIRCUIT

TO RCVR PA

TO XMIT P.A.

TO VSWR CONT LINE

TO PA

CONTROL BOARD

OPTION SWITCH #1

OPTION SWITCH #2

NOTES

1. ALL CAPACITOR VALUES NOT SPECIFIED OTHERWISE ARE PICOFARAD
   ALL RESISTOR VALUES NOT SPECIFIED OTHERWISE ARE OHMS, 4 W
2. ○ DENOTES PIN LOCATED ON P.C. BOARD
   ⌋ DENOTES CIRCUIT TIE POINT
   ⌋⌊ DENOTES SOLDERED IN JUMPERS
   ⌋⌊ DENOTES HARDWIRED JUMPERS-USER SELECTED
   ⟶ DENOTES PLUGGED IN JUMPERS (OPT-ONS)
   - - - - - - - - - - DENOTES BOARD BOUNDARIES
   - - - - - - - - - - DENOTES OPTION VARIATIONS
   * DENOTES PARTS VARIABLE WITH MODEL

REF DES CHART	
LAST	NOT USED
C258	CR207
C363	CR305
R248	IC 302
R345	Q204
Q209	IC 203
Q307	L211
IC 204	L323
L 227	
L 324	

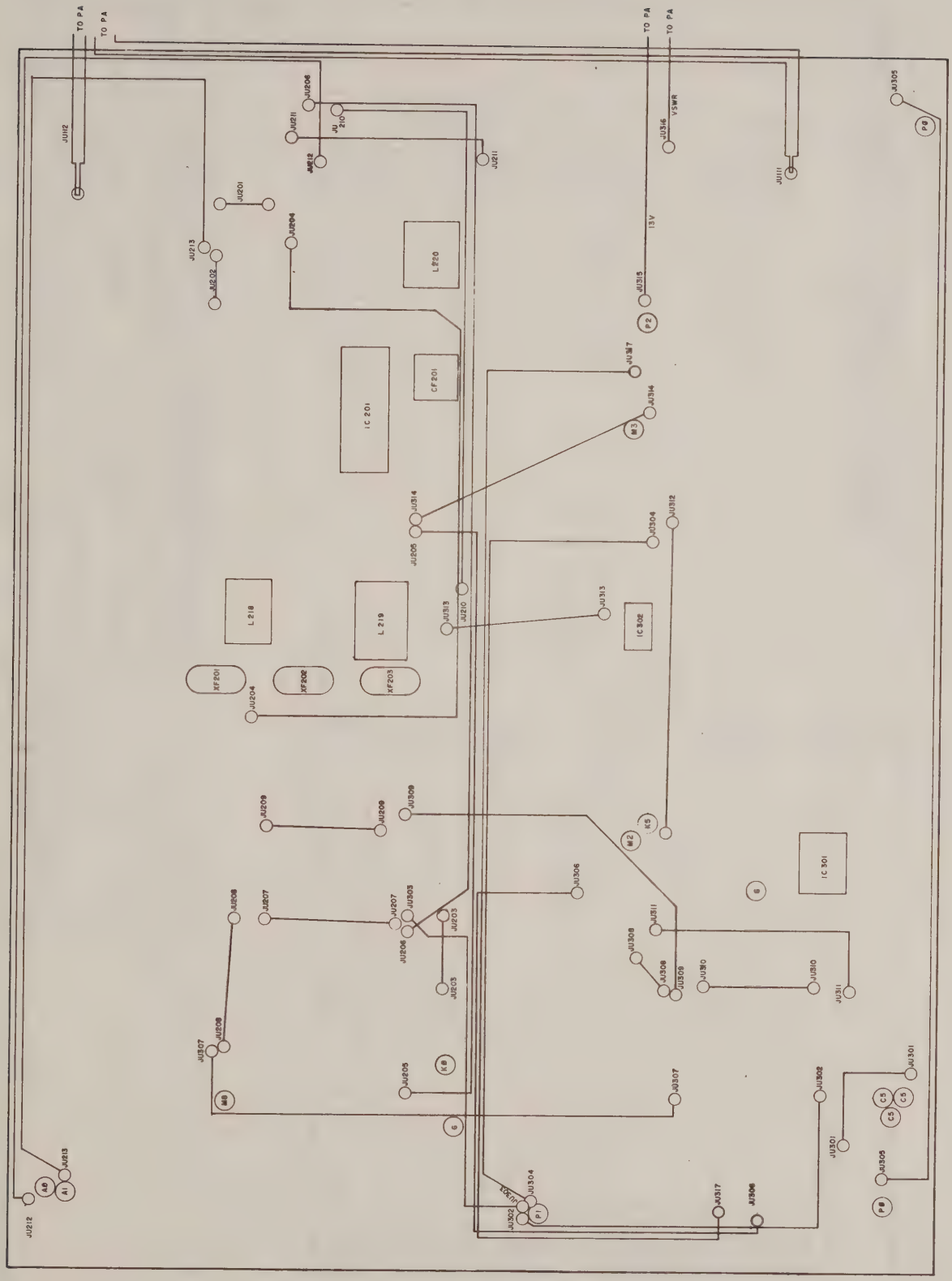
IC 301 1 4.02
2 4.06
3 4.06
4 5 0
5 4.05
6 4.06
7 4.15
8 8.00

4-3 MAIN BOARD-1700-7404-200 SCHEMATIC

ZONE	REV	DESCRIPTION	DATE	APPROVED
		REVISIONS		
	A	RELEASE R-050	9 5 79	Moore
	5	EN AA 666	8/6/79	
	4	EN AA 808	9 5 79	Moore

SCHEMATIC MAIN BOARD 704-038 D

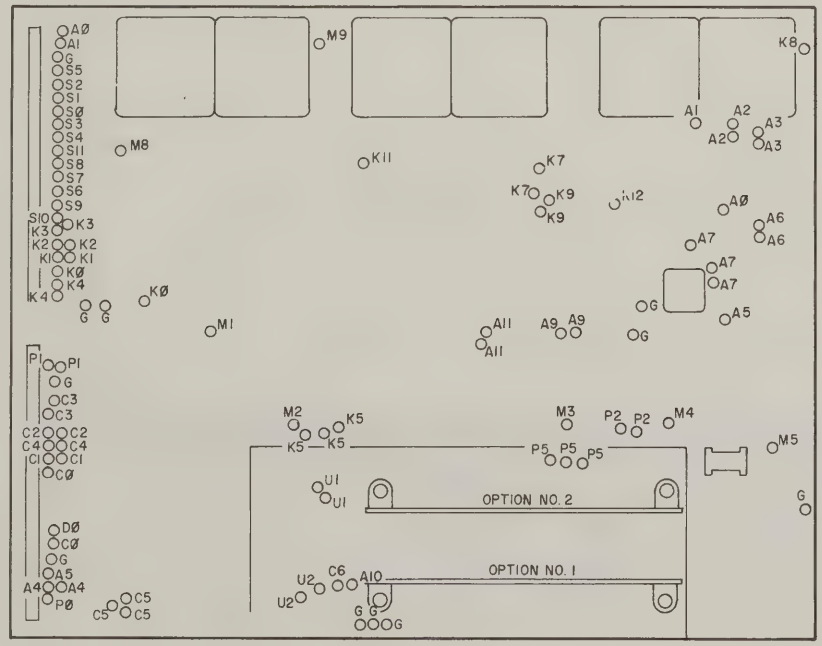
MCU 32



4-4 MAIN BOARD-1700-7404-200
JUMPER DIAGRAM

DWG. NO. 304-120 | SH 1 | REV A

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
—	A	RELEASE R-053	9-15-78	[illegible]



		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT. ± — DEC. .xx± .xxx± ANGLE ± —	APPROVALS	DATE	Regency® COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937
			DRAWN CMcC	9-14-78	
			CHECKED		OPTION TIE POINTS MAIN BOARD
			DFTG. SUPV.		
		MATERIAL	ENGR. [illegible]	9-15-78	
	MCU 30	FINISH			SIZE B PART NUMBER 304-120 REV. A
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DWG.			SCALE — SHEET 1 OF 1

BISHOP GRAPHICS/ACCUPRESS REORDER NO. A-2306

4-6 VOLTAGE DATA - 1700-7404-200 MAIN BOARD

NOTE: All voltages are nominal and were measured with a VTVM at 13.6 VDC supply voltage.

VOLTAGE DATA - TRANSISTORS

		CRYSTAL IN			CRYSTAL OUT		
RX MN. BD.	Trans.	Emitter (Source)	Base (Gate)	Coll. (Drain)	Emitter (Source)	Base (Gate)	Coll. (Drain)
	Q201	2.1	2.3	8.0	2.5	3.2	8.0
	Q202	3.3	3.4	8.0	3.0	3.6	8.0
	Q203	1.5	0	8.0	1.5	0	8.0
	Q205	1.0	0.5	8.0	0.5	0.5	8.0
	Q206	0.7	0	8.0	0.65	0	8.0
	Q207	0.25	0.9	5.0			
	Q208 Unsq.	2.7	3.4	8.0			
	Q209 Unsq.	2.6	3.0	8.0	Sq. 0.77	0	8.0
TX MN. BD.	Q301	1.7	2.2	8.0	1.5	2.2	8.0
	Q302	0	0.4	5.0	0	0.5	8.0
	Q303	0	0.15	13.6	0	0.3	13.6
	Q304	0	0.1	13.6	0	0.3	13.6
	Q305	0	-0.4	13.6	0	0	13.6
	Q306	0	-0.8	13.6	0	0	13.6
	Q307	0	1.0	13.6 @ 25°C			

		KEYED 50 OHM MATCH			KEYED ≥4:1 VSWR MISMATCH		
POWER AMP							
	Q101	0	0.7	.2	0	0.6	12.0
	Q102	13.6	12.8	13.3	13.6	13.0	7.0
	Q103	0	0	13.6			
	Q104	0	0	13.6			
	Q105	0	0	13.6			

VOLTAGE DATA - INTEGRATED CIRCUITS

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC201 Unsq.	8	8	8	8	1	1	1	8	3.6	3.6	2.2	2.2	0	8	0	2
Sq.													.72	0		
IC202	.7	.7	0	7	13.6											
IC204				0	4	4	3.5	8 @ K11 - 3.5V								
IC301	4	4	4	0	4	4	4	8								
IC302	8	0	13.6													

PARTS LIST

MICROCOM U30 AND MICROCOM U15

MAIN BOARD - 1700-7404-200

TRANSMITTER

RESISTORS (All Resistors are ±10%, ¼W, unless otherwise noted.)

LOCATION	DESCRIPTION	PART NO.	
R301A	47K	4701-0473-042	
R301B	47K	4701-0473-042	(4ch only)
R301C	47K	4701-0473-042	(4ch only)
R301D	47K	4701-0473-042	(4ch only)
R302A	10K	4701-0103-042	
R302B	10K	4701-0103-042	(4ch only)
R302C	10K	4701-0103-042	(4ch only)
R302D	10K	4701-0103-042	(4ch only)
R303	47K	4701-0473-042	
R304	22K	4701-0223-042	
R305	22K	4701-0223-042	
R306	10K	4700-0103-042	
R307	820 Ohms	4700-0821-042	(1ch only)
R307	470 Ohms	4700-0471-042	(4ch only)
R308	10K	4701-0103-042	
R309	100K	4701-0104-042	
R310	10K	4701-0103-042	
R311	100K	4701-0104-042	
R312	10K	4701-0103-042	
R313	680 Ohms	4700-0681-042	
R314	470 Ohms	4700-0471-042	
R315	1.5M	4701-0155-042	
R316	100 Ohms	4701-0101-042	
R317	4.7K	4701-0472-042	
R318	4.7K	4701-0472-042	
R319	10K	4701-0103-042	
R320	15K	4701-0153-042	
R321	330 Ohms	4700-0331-042	
R322	470 Ohms	4700-0471-042	
R323	120K	4701-0124-042	
R324	12K	4701-0123-042	
R325	4.7K	4701-0472-042	
R326	12K	4701-0123-042	
R327	470K	4701-0474-042	
R328	10K var	4751-0103-001	
R329	10K	4701-0103-042	
R330	10K	4701-0103-042	
R331	220 Ohms	4700-0221-042	
R332	470 Ohms	4700-0471-042	
R333	10K	4701-0103-042	
R334	220 Ohms	4700-0221-042	
R335	2.2K	4700-0222-042	
R336	10K	4701-0103-042	
R337	220 Ohms	4700-0221-042	
R338	470 Ohms	4700-0471-042	(4ch only)
R339	100 Ohms 10%,½W	4700-0101-044	(4ch only)
R340	100 Ohms 10%,½W	4700-0101-044	

MAIN BOARD - 1700-7404-200

LOCATION	DESCRIPTION	PART NO.	
R341	2.7 Ohms	4700-0279-042	
R342	2.2K	4700-0222-042	
R343	680 Ohms	4701-0681-042	
	CAPACITORS		
C301A	360PF 5% 50V(MICA)	1506-0361-550	
C301B	360PF 5% 50V(MICA)	1506-0361-550	(4ch only)
C301C	360PF 5% 50V(MICA)	1506-0361-550	(4ch only)
C301D	360PF 5% 50V(MICA)	1506-0361-550	(4ch only)
C302A	.01MF 50V +8-2(DISC)	1503-0103-007	(4ch only)
C302B	.01MF 50V +8-2(DISC)	1503-0103-007	(4ch only)
C302C	.01MF 50V +8-2(DISC)	1503-0103-007	(4ch only)
C302D	.01MF 50V +8-2(DISC)	1503-0103-007	(4ch only)
C303	2.2MF 10V (TANT)	1515-0229-002	
C304	120PF 5% 50V(MICA)	1506-0121-550	(1ch only)
C304	220 PF 5% 50V(MICA)	1506-0221-550	(4ch only)
C305	Not Used		
C306	100PF 10% 50V(DISC)	1525-0101-004	
C307	.01MF +8-2 50V(DISC)	1503-0103-007	
C308	100PF 10% 50V(DISC)	1525-0101-004	
C309	100PF 5% 50V(MICA)	1506-0101-550	
C310	5PF 10% 500V(DISC)	1500-0050-905	
C311	47PF 5% 50V(DISC)	1524-0470-002	
C312	150PF 5% 50V(MICA)	1506-0151-550	
C313	.01MF +8-2 50V(DISC)	1503-0103-007	
C314	.01MF +8-2 50V(DISC)	1503-0103-007	
C315	.001MF +8-2 50V(DISC)	1503-0102-003	
C316	10PF 10% 500V(DISC)	1500-0100-905	
C317	.01MF +8-2 50V(DISC)	1503-0103-007	
C318	1.5PF 2.5 500V(DISC)	1500-0159-205	
C319	.01MF +8-2 50V(DISC)	1503-0103-007	
C320	100MF 10V(ELEC)	1513-0101-001	
C321	10MF 25V(ELEC)	1513-0100-003	
C322	10MF 25V(ELEC)	1513-0100-003	
C323	47PF 5% 50V(DISC)	1524-0470-002	
C324	120PF 5% 50V(MICA)	1506-0121-550	
C325	47PF 5% 50V(DISC)	1524-0470-002	
C326	220PF 5% 50V(MICA)	1506-0221-550	
C327	.01MF +8-2 50V(DISC)	1503-0103-007	
C328	100PF 5% 50V(MICA)	1506-0101-550	
C329	.0033MF 10% 100VM(MY)	1508-0332-610	
C330	.01MF +8-2 50V (DISC)	1503-0103-007	
C331	150 PF 5% 50V (MICA)	1506-0151-550	
C332	.033MF 10% 100V(MY)	1508-0333-610	
C333	.01MF +8-2 50V(DISC)	1503-0103-007	
C334	1.5PF 50V NPO (DISC)	1500-0159-250	
C335	8.2PF 10% 500V(DISC)	1500-0829-905	
C336	8.2PF 10% 500V(DISC)	1500-0829-905	
C337	1PF 10% (MUD)	1510-0010-900	
C338	12PF 10% 500V(DISC)	1500-0120-605	
C339	100PF 5% 50V(MICA)	1506-0101-550	
C340	.01MF +8-2 50V(DISC)	1503-0103-007	

MAIN BOARD - 1700-7404-200

LOCATION	DESCRIPTION	PART NO.	
C341	.01MF +8-2 50V(DISC)	1503-0103-007	
C342	15PF 10% 500V(DISC)	1501-0150-001	
C343	6.8PF 10% 500V(DISC)	1500-0689-905	
C344	.22PF 10% (MUD)	1510-0228-900	
C345	5.6PF 10% 500V(DISC)	1500-0569-905	
C346	2.5-20PF TRIM	1517-0000-034	
C347	.01MF +8-2 50V(DISC)	1503-0103-007	
C348	82PF 5% 50V(MICA)	1506-0820-550	
C349	2-6PF TRIM	1517-0000-035	
C350	.68PF 10%(MUD)	1510-0688-900	
C351	2-6PF TRIM	1517-0000-035	
C352	47MF 16V(ELEC)	1513-0470-002	
C353	.1MF 20% 12V(MICA)	1502-0104-005	
C354	6.8PF 10% 500V(DISC)	1500-0689-905	
C355	2.5-20PF TRIM	1517-0000-034	
C356	.01MF 8+-2 50V(DISC)	1503-0103-007	
C357	6.8PF 10% 500V(DISC)	1500-0689-905	
C358	2-6PF TRIM	1517-0000-035	
C359	.01MF +8-2 50V(DISC)	1503-0103-007	
C360	1MF 50V(ELEC)	1513-0010-004	
C361	.005MF +8-2 50V(DISC)	1503-0502-005	
C362	.01MF +8-2 50V(DISC)	1503-0103-007	
C363	.001MF +8-2 50V(DISC)	1503-0102-003	

COILS

L301A	coil, RF variable tap	1800-3247-201	
L301B	coil, RF variable tap	1800-3247-201	(4ch only)
L301C	coil, RF variable tap	1800-3247-201	(4ch only)
L301D	coil, RF variable tap	1800-3247-201	(4ch only)
L302A	choke 100 uhy	1802-0101-008	(4ch only)
L302B	choke 100 uhy	1802-0101-008	(4ch only)
L302C	choke 100 uhy	1802-0101-008	(4ch only)
L302D	choke 100 uhy	1802-0101-008	(4ch only)
L303	choke 100 uhy	1802-0101-008	(4ch only)
L304	coil RF variable	1800-3191-404	
L305	coil RF variable	1800-3191-405	
L306	choke 5.6 uhy	1802-0569-008	
L307	coil RF variable	1800-3191-405	
L308	coil RF variable	1800-3191-405	
L309	choke .47 uhy	1802-0478-008	
L310	coil RF variable	1800-5100-524	
L311	coil RF variable	1800-5124-520	
L312	coil RF variable	1800-5100-520	
L313	choke .1 uhy	1802-0108-008	
L314	coil RF variable	1800-5100-511	
L315	coil RF variable	1800-5100-511	
L316	choke	1803-5125-904	
L317	coil RF loop	1801-3247-401	
L318	coil RF loop	1801-3247-401	

MAIN BOARD - 1700-7404-200

LOCATION	DESCRIPTION	PART NO.	
L319	coil RF loop	1801-3247-401	
L320	bead, choke	2502-3254-101	
L321	choke 22 uhy	1802-0220-008	
L322	coil RF loop	1802-3247-401	
L323	Not Used		
L324	choke 22 uhy	1802-0220-008	
TRANSISTORS			
Q301	NPN SPS-1476	4801-0000-003	
Q302	NPN SPS-1473	4801-0000-035	
Q303	301-696-5	4804-3169-605	
Q304	301-696-5	4804-3169-605	(lo range only)
Q304	301-696-7	4804-3169-607	(hi range only)
Q305	301-696-7	4808-3169-607	
Q306	301-696-7	4808-3169-607	
Q307	Darlington D40C1	4814-0000-002	
DIODES			
CR301A	varicap	4809-5420-600	
CR301B	varicap	4809-5420-600	(4ch only)
CR301C	varicap	4809-5420-600	(4ch only)
CR301D	varicap	4809-5420-600	(4ch only)
CR302A	germanium	4807-1233-900	(4ch only)
CR302B	germanium	4807-1233-900	(4ch only)
CR302C	germanium	4807-1233-900	(4ch only)
CR302D	germanium	4807-1233-900	(4ch only)
CR303	IN4002	4806-0000-004	
CR304	IN4002	4806-0000-004	
CR305	IN4002	4806-0000-004	
INTEGRATED CIRCUITS			
IC301	LM 358 N	3130-3167-909	
IC302	8V reg LM341P-8	3130-0000-023	
MISCELLANEOUS			
RT301	thermistor	5300-0000-001	
RY301	relay 12V	4500-3251-900	

MAIN BOARD - 1700-7404-200

RECEIVER

RESISTORS (All Resistors are ±10%, ¼W, unless otherwise noted.)

LOCATION	DESCRIPTION	PART NO.
R201A	10K	4701-0103-042
R201B	10K	4701-0103-042 (4ch only)
R201C	10K	4701-0103-042 (4ch only)
R201D	10K	4701-0103-042 (4ch only)
R202A	4.7K	4701-0472-042
R202B	4.7K	4701-0472-042 (4ch only)
R202C	4.7K	4701-0472-042 (4ch only)
R202D	4.7K	4701-0472-042 (4ch only)
R203	1K	4701-0102-042 (4ch only)
R204	10K	4701-0103-042
R205	10K	4701-0103-042
R206	220 Ohms	4700-0221-042
R207	10K	4700-0103-042
R208	10K	4700-0103-042
R209	100 Ohms	4700-0101-042
R210	220 Ohms	4700-0221-042
R211	100K	4701-0104-042
R212	12K	4701-0123-042
R213	100 Ohms	4700-0101-042
R214	2.2K	4701-0222-042
R215	10K	4701-0103-042
R216	1K	4700-0102-042
R217	820 Ohms	4700-0821-042
R218	5.6K	4701-0562-042
R219	120K	4701-0124-042
R220	18K	4701-0183-042
R221	1 meg	4701-0105-042
R222	3.3K	4701-0332-042
R223	180 Ohms	4700-0181-042
R224	47K	4701-0473-042
R225	100K	4701-0104-042
R226	180K	4701-0184-042
R227	1.5K	4701-0152-042
R228	47K	4701-0473-042
R229	not used	
R230	270K	4701-0274-042
R231	100K	4701-0104-042
R232	100K	4701-0104-042
R233	220K	4701-0224-042
R234	220K	4701-0224-042
R235	100K	4701-0104-042
R236	5.6K	4701-0562-042
R237	10K	4701-0103-042
R238	5.6K	4701-0562-042
R239	Not Used	
R240	470K	4701-0474-042

MAIN BOARD - 1700-7404-200

LOCATION	DESCRIPTION	PART NO.
R241	470K	4701-0474-042
R242	47K	4701-0473-042
R243	Not Used	
R244	6.8K	4701-0682-042
R245	270 Ohms	4701-0271-042
R246	2.7 Ohms	4701-0279-042
R247	100 Ohms 10%,½W	4700-0101-044
R248	100 Ohms 10%,½W	4700-0101-044 (4ch only)

CAPACITORS

C201A	20PF 10% 50V(DISC)	1500-0200-650
C201B	20PF 10% 50V(DISC)	1500-0200-650 (4ch only)
C201C	20PF 10% 50V(DISC)	1500-0200-650 (4ch only)
C201D	20PF 10% 50V(DISC)	1500-0200-650 (4ch only)
C202A	.01MF +8-2 50V(DISC)	1503-0103-007 (4ch only)
C202B	.01MF +8-2 50V(DISC)	1503-0103-007 (4ch only)
C202C	.01MF +8-2 50V(DISC)	1503-0103-007 (4ch only)
C202D	.01MF +8-2 50V(DISC)	1503-0103-007 (4ch only)
C203	360PF 5% 50V(MICA)	1506-0361-550
C204	22PF 10% 50V(MICA)	1500-0220-650 (lo range only)
C204	20PF 10% 50V(DISC)	1500-0200-650 (hi range only)
C205	39PF 5% 500V(DISC)	1500-0390-505
C206	.01MF +8-2% 500V(DISC)	1503-0103-007
C207	15PF 10% 500V(DISC)	1501-0150-001
C208	.001MF +8-2%(DISC)	1503-0102-003
C209	68PF 5% 50V(DISC)	1524-0680-002
C210	.01MF +9-2% 500V(DISC)	1503-0103-007
C211	47PF 5% 50V(DISC)	1524-0470-002
C212	.001MF +8-2%(DISC)	1503-0102-003
C213	24PF 10% 50V(DISC)	1500-0240-650
C214	.001MF +8-2%(DISC)	1503-0102-003
C215	5.6PF 10% 500V(DISC)	1500-0569-905
C216	10Pf 10% 500V(DISC)	1500-0100-905
C217	82PF 5% 50V(MICA)	1506-0820-550
C218	.01MF +8-2% 50V(DISC)	1503-0103-007
C219	36PF 5% 50V(DISC)	1500-0360-550
C220	.001MF +8-2%(DISC)	1503-0102-003
C221	33PF 10% 50V(DISC)	1500-0330-650
C222	.01MF +8-2% 50V(DISC)	1503-0103-007
C223	4.7PF 10% 500V(DISC)	1500-0479-905
C224	4.7PF 10% 500V(DISC)	1500-0479-905
C225	68PF 5% 50V(DISC)	1524-0680-002
C226	150PF 5% 50V(MICA)	1506-0151-550
C227	.1MF 20% 12V(DISC)	1502-0104-005
C228	.001MF +8-2%(DISC)	1503-0102-003
C229	not used	
C230	.1MF 20% 12V(DISC)	1502-0104-005
C231	300PF 5% 50V(MICA)	1506-0402-550
C232	68PF 5% 50V(DISC)	1524-0680-002
C233	1MF 20% 15V(TANT)	1515-0010-003
C234	.1MF 20% 12V(DISC)	1502-0104-005
C235	.1MF 20% 12V(DISC)	1502-0104-005

MAIN BOARD - 1700-7404-200

LOCATION	DESCRIPTION	PART NO.
C236	.0047MF 10% 100V(MYLAR)	1508-0472-610
C237	10PF 10% 500V(DISC)	1500-1000-905
C238	100PF 5% 50V LCQ-17(MICA)	1506-0101-550
C239	.001 +8-2% 50V(DISC)	1503-0102-003
C240	.1MF 20% 12V(DISC)	1502-0104-005
C241	150PF 20% 500V(DISC)	1523-0151-001
C242	.001MF 10% 100V(MYLAR)	1508-0102-610
C243	.0022MF 5% 100V (MYLAR)	1508-0222-510
C244	.01MF +8-2% 500V(DISC)	1503-0103-007
C245	.1MF 20% 12V(DISC)	1502-0104-005
C246	.0047MF 10% 100V(MYLAR)	1508-0472-610
C247	.05MF +8-2 (DISC)	1501-0503-003
C248	.01MF +8-2% 50V(DISC)	1503-0103-007
C249	100 MF 16V(ELEC)	1513-0101-002
C250	.1MF 20% 12V(DISC)	1502-0104-005
C251	1000MF 16V(ELEC)	1513-0102-002
C252	1MF 20% 15V(TANT)	1515-0010-003
C253	47PF 5% 50V(DISC)	1524-0470-002
C254	.001MF +8-2%(DISC)	1503-0102-003
C255	75PF 5% 50V(DISC)	1524-0750-002
C256	Not Used	
C257	22PF 10% 50V(DISC)	1500-0220-650
C258	.001 MF +8-2% 50V(DISC)	1503-0102-003

DIODES

CR201A	Varicap MV1172	4809-0000-001	
CR201B	Varicap MV1172	4809-0000-001	(4ch only)
CR201C	Varicap MV1172	4809-0000-001	(4ch only)
CR201D	Varicap MV1172	4809-0000-001	(4ch only)
CR202A	Germanium	4807-1233-900	(4ch only)
CR202B	Germanium	4807-1233-900	(4ch only)
CR202C	Germanium	4807-1233-900	(4ch only)
CR202D	Germanium	4807-1233-900	(4ch only)
CR203	IN4148	4805-1241-200	
CR204	IN4148	4805-1241-200	
CR205	IN4148	4805-1241-200	
CR206	IN4148	4805-1241-200	
CR207	IN4148	4805-1241-200	

TRANSISTORS

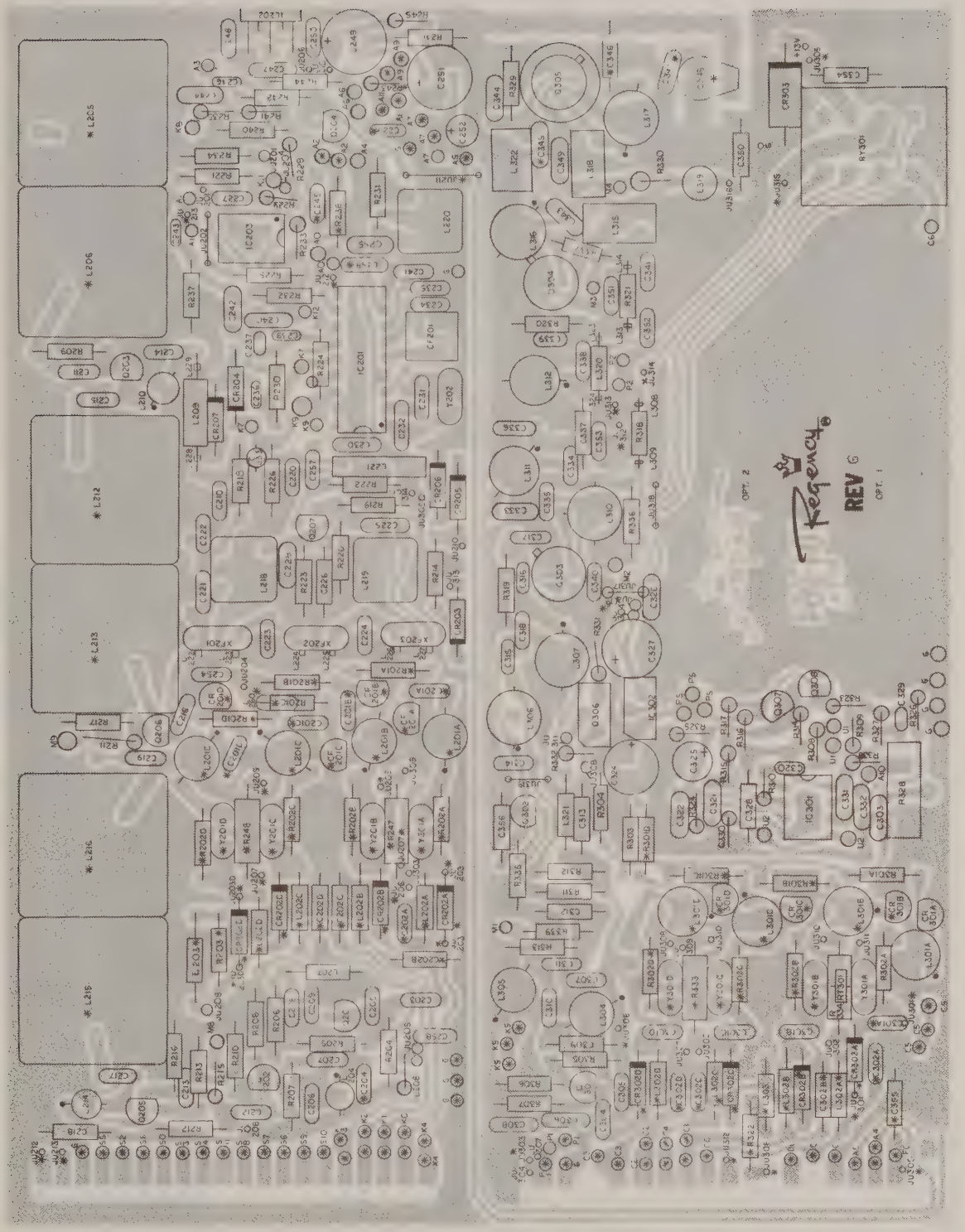
Q201	NPN 2N5130	4801-0000-095
Q202	NPN SPS-1476	4801-0000-003
Q203	FET U310	4811-3406-200

MAIN BOARD - 1700-7404-200

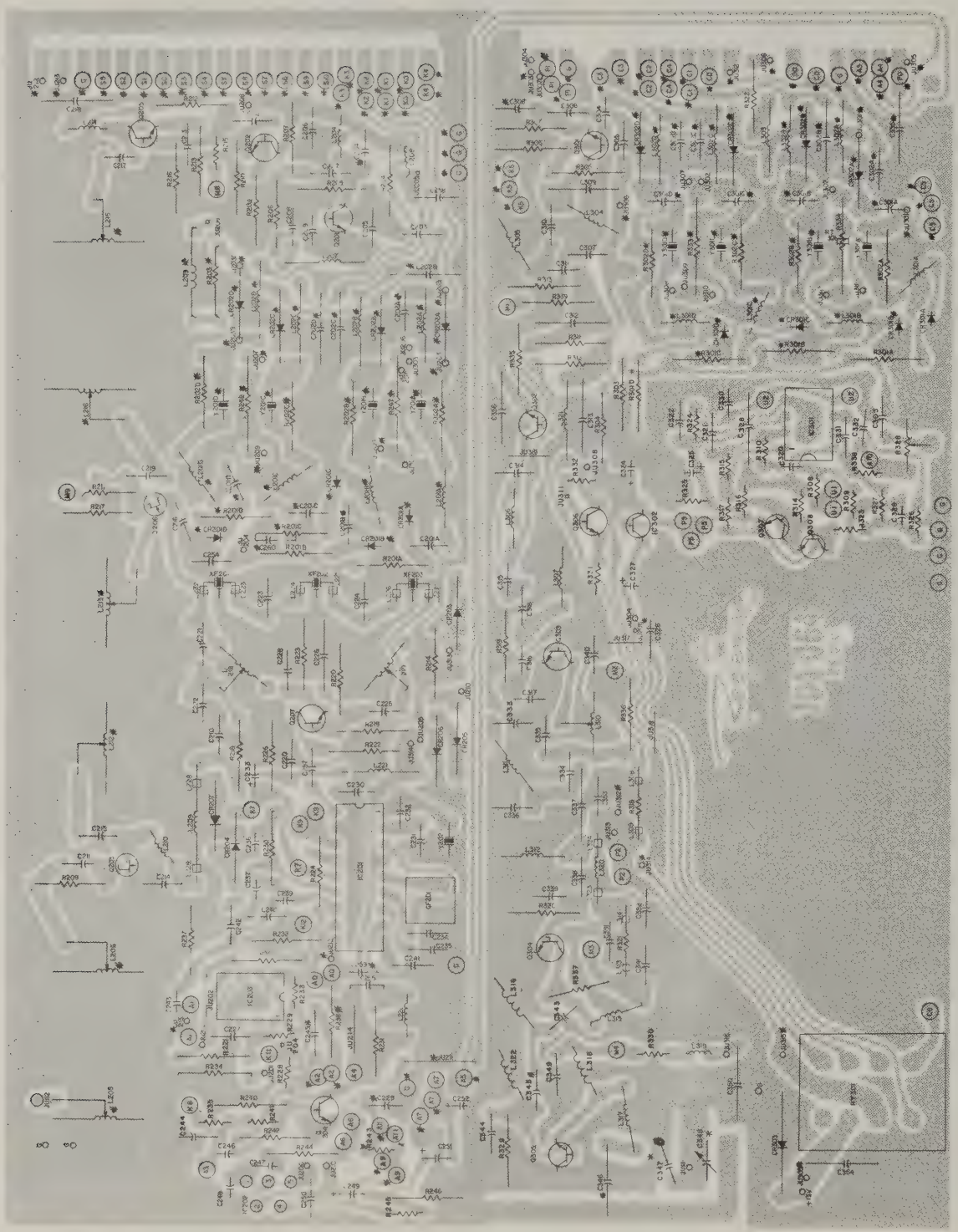
LOCATION	DESCRIPTION	PART NO.	
Q204	Not Used		
Q205	NPN SPS-1476	4801-0000-003	
Q206	FET 2N5668	4811-0000-030	
Q207	NPN SPS-1473	4801-0000-035	
Q208	NPN SPS-952	4801-0000-010	
Q209	NPN SPS-952	4801-0000-010	
INTEGRATED CIRCUITS			
IC201	FM	3130-5127-100	
IC202	TDA 2002 AD	3130-5407-602	
IC203	Not Used		
IC204	LM358N	3130-3167-909	
FILTERS			
XF201	filter, Xtal	2705-3232-200	
XF202	filter, Xtal	2705-1306-600	
XF203	filter, Xtal	2705-3232-200	
CF201	filter, ceramic	2700-3209-500	
CRYSTAL			
Y202	10.245 MHz	2301-3151-601	
COILS			
L201A	coil, variable	1800-3191-406	
L201B	coil, variable	1800-3191-406	(4ch only)
L201C	coil, variable	2800-3191-406	(4ch only)
L201D	coil, variable	1800-3191-406	(4ch only)
L202A	choke, 5.6 uhy	1802-0569-008	(4ch only)
L202B	choke, 5.6 uhy	1802-0569-008	(4ch only)
L202C	choke, 5.6 uhy	1802-0569-008	(4ch only)
L202D	choke, 5.6 uhy	1802-0569-008	(4ch only)
L203	choke, 5.6 uhy	1802-0569-008	(4ch only)
L204	coil, variable	1800-5100-521	
L205	coil, variable	1800-5129-101	(lo range only)
L205	coil, variable	1800-5129-105	(hi range only)
L206	coil, variable	1800-5129-102	(lo range only)
L206	coil, variable	1800-5129-106	(hi range only)
L207	choke, .47 uhy	1802-0478-006	
L208	choke, 22 uhy	1802-0220-008	
L209	choke, 15 uhy	1802-0150-004	
L210	choke, RF	1800-5100-522	
L211	not used		
L212	coil, variable	1800-5129-103	(lo range only)
L212	coil, variable	1800-5129-107	(hi range only)
L213	coil, variable	1800-5129-102	(lo range only)
L213	coil, variable	1800-5129-106	(hi range only)

MAIN BOARD - 1700-7404-200

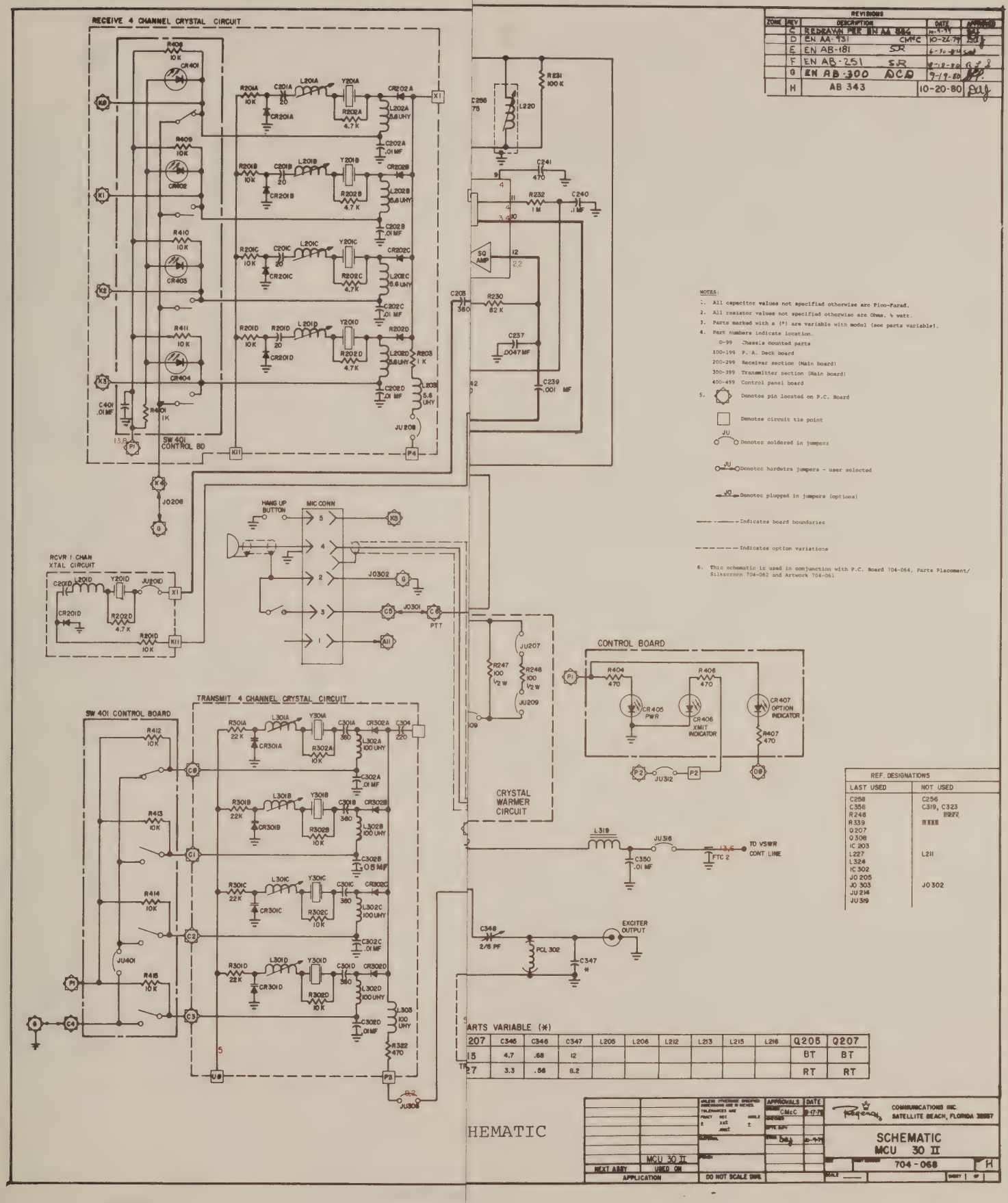
LOCATION	DESCRIPTION	PART NO.	
L214	choke, RF	1800-5100-523	
L215	coil, variable	1800-5129-104	(lo range only)
L215	coil, variable	1800-5129-108	(hi range only)
L216	coil, variable	1800-5129-102	(lo range only)
L216	coil, variable	1800-5129-109	(hi range only)
L217	choke, 22 uhy	1802-0220-008	
L218	coil 10.7 IF	1800-3248-001	
L219	coil 10.7 IF	1800-3248-001	
L220	coil	1800-3409-201	
L221	choke, 1000 uhy	1800-3409-201	
L222	Bead choke,	2502-0000-001	
L223	Beac choke	2502-0000-001	
L224	Bead choke	2502-0000-001	
L225	Bead choke	2502-0000-001	
L226	Bead choke	2502-0000-001	
L227	Bead choke	2502-0000-001	



5-1 MAIN BOARD - 704-064
PARTS PLACEMENT



5-2 MAIN BOARD 704-064
PARTS OVERLAY



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	C	REDRAWN PER EN AA 846	10-5-77	
	D	EN AA-931 CMPC	10-26-77	
	E	EN AB-181 SR	6-30-78	
	F	EN AB-251 SR	8-18-78	
	G	EN AB-300 ACD	9-19-80	
	H	AB 343	10-20-80	

NOTES:

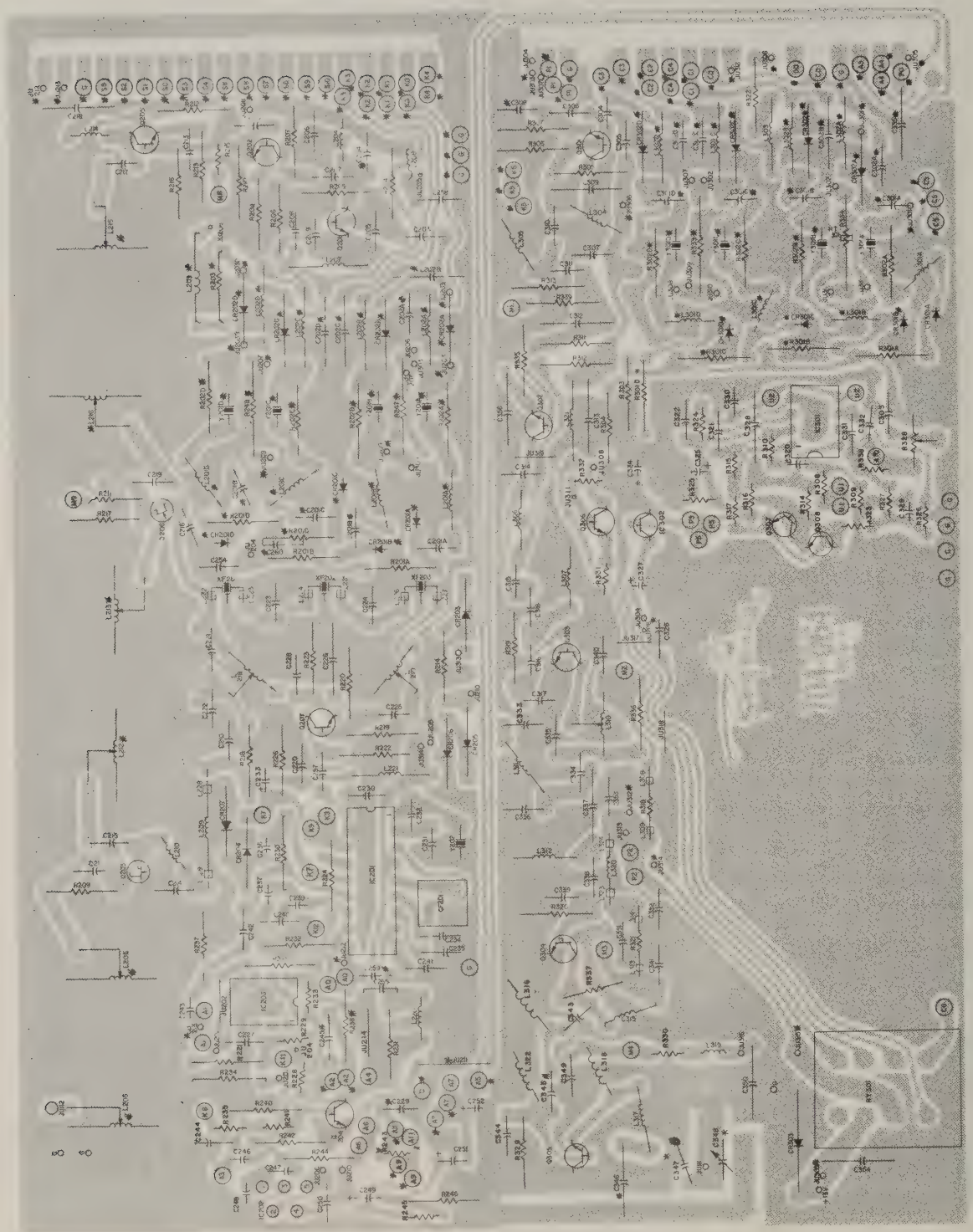
1. All capacitor values not specified otherwise are Pico-Farad.
2. All resistor values not specified otherwise are Ohms, ¼ watt.
3. Parts marked with a (*) are variable with model (see parts variable).
4. Part numbers indicate location.
   - 0-99 Chassis mounted parts
   - 100-199 P. A. Deck board
   - 200-299 Receiver section (Main board)
   - 300-399 Transmitter section (Main board)
   - 400-499 Control panel board
5. Denotes pin located on P.C. Board
   Denotes circuit tie point
   JU — Denotes soldered in jumper
   JU — Denotes hardwire jumpers - user selected
   JO — Denotes plugged in jumpers (options)
   ——·—— Indicates board boundaries
   — — — — Indicates option variations
6. This schematic is used in conjunction with P.C. Board 704-064, Parts Placement/Silkscreen 704-062 and Artwork 704-061

REF. DESIGNATIONS	
LAST USED	NOT USED
C258	C256
C356	C319, C323
R248	R227
R339	
Q207	
Q306	
IC 203	
L227	L211
L324	
IC 302	
JO 205	
JO 303	JO 302
JU 214	
JU 319	

PARTS VARIABLE (*)

	C346	C346	C347	L205	L206	L212	L213	L215	L216	Q205	Q207
207	4.7	.68	12							BT	BT
15	3.3	.56	8.2							RT	RT
27											

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT ± .xx ± .xxx ± ANGL ±	APPROVALS	DATE	COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937
			DRAWN CMcC	9-17-79	
			ENGRG		SCHEMATIC MCU 30 II
			QUALITY		
			MFG	10-9-79	
	MCU 30 II				704-068 H
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DWG.			SCALE — SHEET 1 OF



5-2 MAIN BOARD 704-064
PARTS OVERLAY

REVISIONS			
ZONE	REV	DESCRIPTION	DATE
	C	RELEASED PER EN AB 886	10-24-79
	D	EN AA 93 CHRC	10-24-79
	E	EN AB-181 SR	6-10-80
	F	EN AB-251 SR	8-8-80
	G	EN AB-300 ACD	9-19-80
	H	AB 343	10-20-80

RECEIVE 4 CHANNEL CRYSTAL CIRCUIT

RCVR 1 CHAN XTAL CIRCUIT

TRANSMIT 4 CHANNEL CRYSTAL CIRCUIT

TRANSMIT 1 CHANNEL CRYSTAL CIRCUIT

SW 401 CONTROL BD

CONTROL BOARD

CRYSTAL WARMER CIRCUIT

VOLTAGES SHOWN IN RED

13.6/0 KEYED

NOTES

1. All capacitor values not specified otherwise are Pico-Farad
2. All resistor values not specified otherwise are Ohms, ¼ watt
3. Parts marked with a (*) are variable with model (see parts variable
4. Part numbers indicate location
   - 1-99 Chassis mounted parts
   - 100-199 P. A. Deck board
   - 200-299 Receiver section (Main board
   - 300-399 Transmitter section (Main board
   - 400-499 Control panel board
5. Denotes pin located on P.C. Board
   - Denotes circuit tie point
   - Denotes soldered in jumper
   - Denotes hardwire jumpers - user selected
   - Denotes plugged in jumpers (options
   - Indicates board boundaries
   - Indicates option variations
6. This schematic is used in conjunction with P.C. Board 704-064, Parts Placement Silkscreen 704-062 and Artwork 704-061

REF DESIGNATIONS

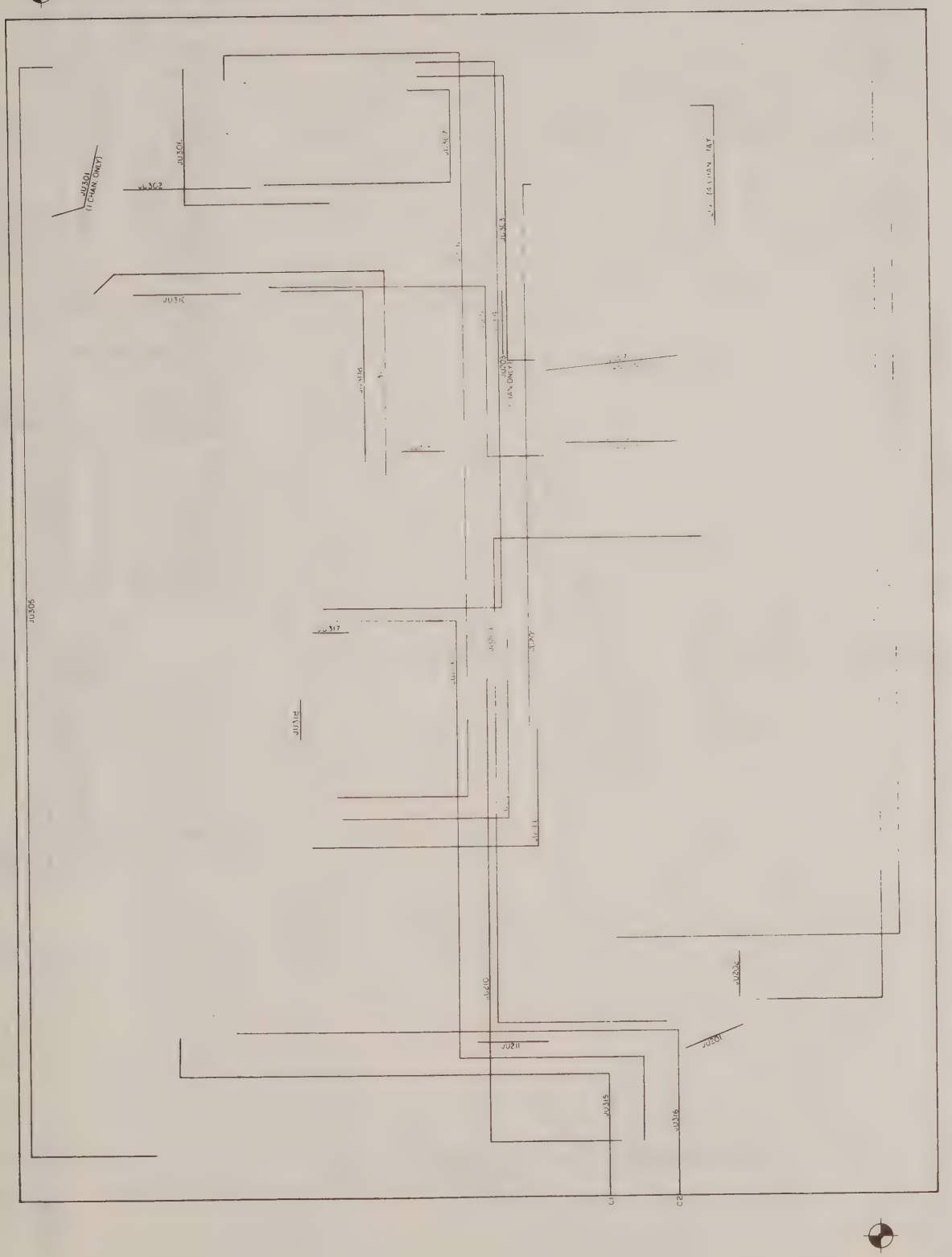
LAST USED	NOT USED
C256	C256
C356	C319, C323
R248	R227,
R339	R338
Q207	
Q308	
IC 303	
L227	L211
L324	
IC 302	
JO 205	
JO 303	JO 302
JU 314	
JU 319	

PARTS VARIABLE (*)

MODEL	FREQ. RANGE	C204	C207	C345	C346	C347	L205	L206	L212	L213	L215	L216	Q205	Q207
MCU 31, MCU 15 MCU 34, MCU 18	450-475 MHz	22	15	4.7	.68	12							BT	BT
MCU31H, MCU31H MCU34H, MCU31H	475-512 MHz	20	27	3.3	.56	8.2							RT	RT

5-3 MAIN BOARD SCHEMATIC
704-064

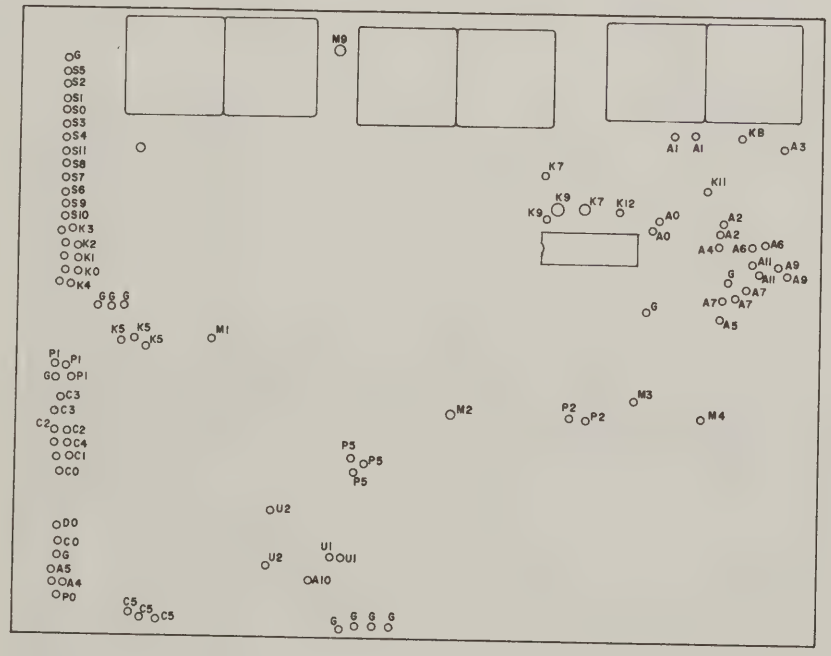
		UNLESS OTHERWISE SPECIFIED THIS DRAWING AND IS RELEASED	APPROVALS	DATE	COMMUNICATIONS INC. MELBOURNE, FLORIDA 32901
		THIRD ANGLE PROJECTION	CMcC	8-27-79	
		DIMENSIONS ARE IN INCHES			SCHEMATIC MCU 30 II
		TOLERANCES: FRACT ± DEC ± ANGL ±	APPROVAL		
		MATERIAL	DRAWN	8-27-79	SIZE D DWG NO 704-068 REV H
		FINISH			SCALE NONE SHEET 1 OF 1
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DWG.			



5-4 MAIN BOARD -704-064
JUMPER DIAGRAM

DWG. NO. 304-211 | SH 1 | REV. A

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASE R-221	1-10-80	Daf



			APPROVALS	DATE
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT. ± DEC. .xx± .xxx± ANGLE ±	DRAWN CMcC	1-10-80
			CHECKED	
			DFTG. SUPV.	
		MATERIAL	ENGR. Daf	1-10-80
	MCU 30 II	FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DWG.		

Regency® COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937

OPTION TIE POINTS
MAIN BOARD

SIZE B | PART NUMBER 304-211 | REV. A | SCALE — | SHEET | OF |

BISHOP GRAPHICS/ACCUPRESS REORDER NO. A-2306

5-6 VOLTAGE DATA - 704-064 MAIN BOARD

NOTE: All voltages are nominal and were measured with a VTVM at 13,6 VDC supply voltage.

VOLTAGE DATA - TRANSISTORS

		CRYSTAL IN			CRYSTAL OUT		
RX MN. BD.	Trans.	Emitter (Source)	Base (Gate)	Coll. (Drain)	Emitter (Source)	Base (Gate)	Coll. (Drain)
	Q201	2.2V	2.7V	8.2V	2.2	2.9	8.2
	Q202	3.2	3.7	8.2	3.3	4.2	8.2
	Q203	1.2	0	7.8			
	Q205	0.7	0.54	8.2	0	0.6	8.2
	Q206	0.71	0	6.8	0.64	0	6.8
	Q207	0.2	0.85	5.2			
	Q204 sq.	2.4	3	8.2 Unsq.	0.9	0	8.2
TX MN. BD.	Q301	1.8	2.2	8	1.7	2.3	8.2
	Q302	1.4	1.8	3.1	1.4	2.2	3.6
	Q303	0	-1.5	10.5	0	0	13.6
	Q304	0	- .75	9.5	0	0	13.6
	Q305	0	0	11.5	0	0	13.6
	Q306	.2	.9	13.6 @25°C			
	Q307	4	3.9	3.9			
	Q308	3.9	4	4			

POWER AMP		KEYED 50 OHM MATCH			KEYED >4:1 VSWR MISMATCH		
	Q101	0	0.7	.2	0	0.6	12.0
	Q102	13.6	12.8	13.8	13.6	13.0	7.0
	Q103	0	0	13.6 VDC			
	Q104	0	0	13.6			
	Q105	0	0	13.6			

VOLTAGE DATE - INTEGRATED CIRCUITS

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
IC201 Unsq.	8.0	7.6	7.7	8.2	1	1	1	8	4	3.4	4	2	2	0	7.6	7.5	5.0	2
Sq.														.6	0			
IC202	.7	.6	0	6.7	13.6													
IC203	7	5.5	5	0	4.0	4.0	2.8	8.2 @K11 3.2V										
IC301	3.8	3.8	3.8	0	3.8	3.8	3.8	8										
IC302	8.2	0	13.6															

	M1	M2	M3	M4
Tuned	1.5	10.2	9	12
Osc Off	2.1	13.6	13.6	13.6

PARTS LIST

MICROCOM U30 AND MICROCOM U15

MAIN BOARD - 704-064

TRANSMITTER

RESISTORS (All Resistors are ±5%, ¼W, unless otherwise noted.)

LOCATION	DESCRIPTION	PART NO.	
R301A	22K	4704-0223-032	
R301B	22K	4704-0223-032	(4 ch only)
R301C	22K	4704-0223-032	(4 ch only)
R301D	22K	4704-0223-032	(4 ch only)
R302A	10K ohms	4704-0103-032	
R302B	10K ohms	4704-0103-032	(4 ch only)
R302C	10K ohms	4704-0103-032	(4 ch only)
R302D	10K ohms	4704-0103-032	(4 ch only)
R303	82K	4704-0823-032	
R304	47K ohms	4704-0473-032	
R305	22K	4704-0223-032	
R306	10K 1/4W 10%	4700-0103-042	
R307	820 ohms	4700-0821-042	(1 ch only)
R307	470 ohms	4700-0471-042	(4 ch only)
R308	1K	4704-0102-032	
R309	270K	4704-0274-032	
R310	4.7K ohms	4704-0472-032	
R311	5.6K	4704-0562-032	
R312	330 ohms 1/4W 10%	4700-0331-042	
R313	2.2K 1/4W 10%	4700-0222-042	
R314	4.7K ohms	4704-0472-032	
R315	1.2 meg	4704-0125-032	
R316	100 ohms	4704-0101-032	
R317	4.7K ohms	4704-0472-032	
R318	47 ohms	4704-0470-032	
R319	2.2K 1/4W 10%	4700-0222-042	
R320	150 ohms 1/4W 10%	4700-0151-042	
R321	33 ohms 1/4W 10%	4700-0330-042	
R322	470 ohms	4701-0471-042	(4ch only)
R323	15K	4704-0153-032	
R324	47K ohms	4704-0473-032	
R325	4.7K ohms	4704-0472-032	
R326	10K ohms	4704-0103-032	
R327	47K ohms	4704-0473-032	
R328	res var	4751-3407-101	
R329	150 ohms 1/4W 10%	4700-0151-042	
R330	3.9 ohms 1/2W 10%	4701-0399-044	
R331	2.7 ohms 1/4W 10%	4700-0279-042	
R332	2.2K	4704-0222-032	
R333	100 ohms 1/2W 10%	4700-0101-044	
R334	100K ohms 1/2W 10%	4700-0101-044	
R335	100 ohms 1/4W 10%	4700-0101-042	
R336	1K 1/4W 10%	4700-0102-042	
R337	330 ohms 1/4W 10%	4700-0331-042	
R338	1K	4704-0102-032	(4 ch only)
R339	10K ohms	4704-0103-032	(4 ch only)

MAIN BOARD - 704-064

CAPACITORS

LOCATION	DESCRIPTION	PART NO.	
C301A	360PF 5% 50V(MICA)	1506-0361-550	(4ch only)
C301B	360PF 5% 50V(MICA)	1506-0361-550	(4ch only)
C301C	360PF 5% 50V(MICA)	1506-0361-550	(4ch only)
C301D	360PF 5% 50V(MICA)	1506-0361-550	(4ch only)
C302A	.01MF 50V +8-2(DISC)	1503-0103-007	(4ch only)
C302B	.05MF 50V +8-2(DISC)	1501-0503-003	(4ch only)
C302C	.01MF 50V +8-2(DISC)	1503-0103-007	(4ch only)
C302D	.01MF 50V +8-2(DISC)	1503-0103-007	(4ch only)
C303	2.2MF TANT 10V 20	1515-0229-002	
C304	120PF 5% 50V(MICA)	1506-0121-550	(1ch only)
C304	220PF 5% 50V(MICA)	1506-0221-550	(4ch only)
C305	.01MF 50V +8-2(DISC)	1503-0103-007	
C306	100PF 10% 50V(DISC)	1525-0101-004	
C307	.01MF +8-2 50V(DISC)	1503-0103-007	
C308	100PF 10% 50V(DISC)	1525-0101-004	
C309	100PF 10% 50V NPO (TM)	1539-0101-601	
C310	4.7PF 10% 500V NPO (DISC)	1500-0479-905	
C311	47PF 5% 50V NPO (RD)	1524-0470-002	
C312	180PF 10% 50V NPO (TM)	1539-0181-601	
C313	.01 tub cer 30% 25V	1538-0103-804	
C314	.005MF +8-2 50V(DISC)	1503-0502-005	
C315	120PF 5% 50V LCQ-17(MICA)	1506-0121-550	
C316	47PF 5% 50V NPO (RD)	1524-0470-002	
C317	100PF 5% 50V LCQ-17(MICA)	1506-0101-550	
C318	10PF 10% 500V NPO(DISC)	1500-0100-905	
C319	not used		
C320	.0022MF 10% 100V(MY)	1508-0222-610	
C321	820PF 5% 50V LCQ-17(MICA)	1506-0821-550	
C322	.01MF +8-2 50V(DISC)	1503-0103-007	
C323	not used		
C324	100MF 20V 85D (ELEC)	1513-0101-001	
C325	47MF 16V 85D (ELEC)	1513-0470-002	
C326	.1MF +8-2 50V(DISC)	1503-0104-010	
C327	47MF 16V 85D (ELEC)	1513-0470-002	
C328	tub cer .01 30% 25V	1538-0103-804	
C329	.01MF 10% 100V(MY)	1508-0103-610	
C330	tub cer .01 30% 25V	1538-0103-804	
C331	820PF 5% 50V LCQ-17(MICA)	1506-0821-550	
C332	.047MF 10% 100V(MY)	1508-0473-610	
C333	22PF 10% 50V NPO(DISC)	1500-0220-650	
C334	2.2PF 10% 500V NPO(DISC)	1500-0229-905	
C335	5.6PF 10% 500V NPO(DISC)	1500-0569-905	
C336	18PF 5% 50V NPO(DISC)	1500-0180-550	
C337	.47PF 10% (MUD)	1510-0478-900	
C338	10PF 10% 500V NPO(DISC)	1500-0100-905	
C339	68PF 10% 500V NPO(DISC)	1524-0680-002	
C340	470PF 20% 50V(DISC)	1523-0471-002	
C341	360PF 5% 50V LCQ-17(MICA)	1506-0361-550	
C342	not used		

MAIN BOARD -704-064

LOCATION	DESCRIPTION	PART NO.	
C343	1.5PF 50V NPO(DISC)	1500-0159-250	
C344	30PF 10% 500V NPO(DISC)	1500-0300-905	
C345	4.7PF 10% 500V NPO(DISC)	1500-0479-905	
C346	.68 PF 10% (MUD)	1510-0688-900	
C347	12PF 10% 500V NPO(DISC)	1500-0120-605	
C348	2-6PF Trimmer	1517-0000-035	
C349	470PF 20% 50V Z5F (DISC)	1523-0471-002	
C350	tub cer .01 30% 25V	1538-0103-804	
C351	100PF 5% 50V LCQ-17(MICA)	1506-0101-550	
C352	.01MF +8-2 50V(DISC)	1503-0103-007	
C353	.001MF 20% 50V Z5F(DISC)	1523-0102-002	
C354	tub cer 4700PF 30% 25V	1538-0472-804	
C355	tub cer .01 30% 25V	1538-0103-804	
C356	tub cer .01 30% 25V	1538-0103-804	

COILS

L301A	coil rf variable	1800-3247-201	
L301B	coil rf variable	1800-3247-201	(4ch only)
L301C	coil rf variable	1800-3247-201	(4ch only)
L301D	coil rf variable	1800-3247-201	(4ch only)
L302A	choke 100 uhy	1802-0101-008	(4ch only)
L302B	choke 100 uhy	1802-0101-008	(4ch only)
L302C	choke 100 uhy	1802-0101-008	(4ch only)
L302D	choke 100 uhy	1802-0101-008	(4ch only)
L303	choke 100 uhy	1802-0101-008	(4ch only)
L304	coil rf var pink	1800-3191-404	
L305	coil rf var green	1800-3191-405	
L306	coil rf var pink	1800-3191-404	
L307	coil rf var green	1800-3191-405	
L308	ferrite bead	2502-0000-001	
L309	ferrite bead	2502-0000-001	
L310	coil	1800-3152-029	
L311	coil	1800-3152-019	
L312	coil	1800-3152-019	
L313	ferrite bead	2502-0000-001	
L314	ferrite bead	2502-0000-001	
L315	choke LM-2	1803-5125-902	
L316	coil	1800-3152-009	
L317	coil	1800-3152-030	
L318	choke molded 1½ turns	1803-5125-907	
L319	choke bead	2502-3254-101	
L320	choke rf .1 uhy	1802-0108-008	
L321	22 uhy	1802-0220-008	
L322	choke LM-2	1803-5125-902	
L323	ferrite bead	2502-0000-001	
L324	ferrite bead	2502-0000-001	

MAIN BOARD - 704-064

LOCATION	DESCRIPTION	PART NO.	
TRANSISTORS			
Q301	Trans Blue Top SPS1476	4801-0000-003	
Q302	Trans Blue Top SPS1476	4801-0000-003	
Q303	Trans Rf Pwr 696-7	4804-3169-607	
Q304	Trans Rf Pwr 696-7	4804-3169-607	
Q305	Trans Rf Pwr	4804-3402-301	
Q306	Trans Darlington	4814-0000-002	
Q307	Trans SPS 952-2	4801-0000-016	
Q308	Trans SPS 952-2	4801-0000-016	
DIODES			
CR301A	varicap	4809-5420-600	
CR301B	varicap	4809-5420-600	(4ch only)
CR301C	varicap	4809-5420-600	(4ch only)
CR301D	varicap	4809-5420-600	(4ch only)
CR302A	diode Sil IN4148	4805-1241-200	(4ch only)
CR302B	diode Sil IN4148	4805-1241-200	(4ch only)
CR302C	diode Sil IN4148	4805-1241-200	(4ch only)
CR302D	diode Sil IN4148	4805-1241-200	(4ch only)
CR303	diode Sil IN5401	4806-0000-013	
INTEGRATED CIRCUITS			
IC301	LM358N	3130-3167-909	
IC302	Reg 8.0V LM341	3130-0000-023	
MISCELLANEOUS			
RT301	thermistor Fenwal	5300-0000-001	
RY301	relay 12V	4500-3251-900	

RESISTORS (All Resistors are ±5%, ¼W, unless otherwise noted.)

LOCATION	DESCRIPTION	PART NO.	
R201A	10K ohms	4704-0103-032	(4ch only)
R201B	10K ohms	4704-0103-032	(4ch only)
R201C	10K ohms	4704-0103-032	(4ch only)
R201D	10K ohms	4704-0103-032	
R202A	4.7K ohms	4704-0472-032	(4ch only)
R202B	4.7K ohms	4704-0472-032	(4ch only)
R202C	4.7K ohms	4704-0472-032	(4ch only)
R202D	4.7K ohms	4704-0472-032	
R203	1K	4701-0102-042	(4ch only)
R204	15K	4704-0153-032	
R205	10K 1/4W 10%	4700-0103-042	
R206	220 ohms 1/4W 10%	4700-0221-042	
R207	10K 1/4W 10%	4700-0103-042	
R208	10K 1/4W 10%	4700-0103-042	
R209	100 ohms carb comp	4700-0101-042	
R210	220 ohms 1/4W 10%	4700-0221-042	
R211	100K	4704-0104-032	
R212	15K	4704-0153-032	
R213	100 ohms carb comp	4700-0101-042	
R214	2.2K 1/4W 10%	4700-0222-042	
R215	10K ohms	4704-0103-032	
R216	1K ¼W 10%	4700-0102-042	
R217	820 ohms 1/4W 10%	4700-0821-042	
R218	1K	4704-0102-032	
R219	120K	4704-0124-032	
R220	15K	4704-0153-032	
R221	1 meg	4704-0105-032	
R222	3.3K ohms	4704-0332-032	
R223	180 ohms 1/4W 10%	4700-0181-042	
R224	47K ohms	4704-0473-032	
R225	100K	4704-0104-032	
R226	180K	4704-0184-032	
R227	not used		
R228	18K ohms	4704-0183-032	
R229	1K	4704-0102-032	
R230	82K	4704-0823-032	
R231	100K	4704-0104-032	
R232	1 meg	4704-0105-032	
R233	220K	4704-0224-032	
R234	220K	4704-0224-032	
R235	270K	4704-0274-032	
R236	not used		
R237	5.6K	4704-0562-032	
R238	8.2K ohms	4704-0822-032	
R239	not used		
R240	470K	4704-0474-032	
R241	220K	4704-0224-032	

MAIN BOARD - 704-064

LOCATION	DESCRIPTION	PART NO.	
R242	47K ohms	4704-0473-032	
R243	680 ohms	4704-0681-032	
R244	15K	4704-0153-032	
R245	330 ohms	4704-0331-032	
R246	2.7 ohms	4704-0279-032	
R247	not used		
R248	100 ohms /2W	4700-0101-044	
CAPACITORS			
C201A	20PF 10% 50V(DISC)	1500-0200-650	(4ch only)
C201B	20PF 10% 50V(DISC)	1500-0200-650	(4ch only)
C201C	20PF 10% 50V(DISC)	1500-0200-650	(4ch only)
C201D	20PF 10% 50V(DISC)	1500-0200-650	
C202A	.01MF +8-2 50V(DISC)	1503-0103-007	(4ch only)
C202B	.01MF tub cer 30% 25V	1538-0103-804	(4ch only)
C202C	.01MF tub cer 30% 25V	1538-0103-804	(4ch only)
C202D	.01MF tub cer 30% 25V	1538-0103-804	(4ch only)
C203	360PF 5% 50V LCQ-17(MICA)	1506-0371-550	
C204	22PF 10% 50V NPO(DISC)	1500-0220-650	
C205	39PF 5% 500V NPO(DISC)	1500-0390-505	
C206	.01MF +8-2 50V(DISC)	1503-0103-007	
C207	15PF 10 5-0V NPO(DISC)	1501-0150-001	
C208	.001MF +8-2 50V(DISC)	1503-0102-003	
C209	68PF 5% 50V NPO(RD)	1524-0680-002	
C210	.01MF +8-2 50V(DISC)	1503-0103-007	
C211	47PF 5% 50V NPO(RD)	1524-0470-002	
C212	.001MF +8-2 50V(DISC)	1503-0102-003	
C213	24PF 10% 50V NPO(DISC)	1500-0240-650	
C214	.001MF +8-2 50V(DISC)	1503-0102-003	
C215	5.6PF 10$ 500V NPO(DISC)	1500-0569-905	
C216	24PF 10% 50V NPO(DISC)	1500-0240-650	
C217	82PF 5% 50V NPO(RD)	1524-0820-002	
C218	tub cer .01 30% 25V	2538-0103-804	
C219	36PF 5% 50V(DISC)	1500-0360-550	
C220	.001MF +8-2 50V(DISC)	1503-0102-003	
C221	24PF 10% 50V NPO(DISC)	1500-0240-650	
C222	.01MF +8-2 (DISC)	1503-0103-007	
C223	4.7PF 10% 500V NPO(DISC)	1500-0479-905	
C224	4.7PF 10% 500V NPO(DISC)	1500-0479-905	
C225	68PF 5% 50V NPO(RD)	1524-0680-002	
C226	150PF 10% 50V NPO (TM)	1539-0151-601	
C227	.1MF 20% 12V BC-12 (MC)	1502-0104-005	
C228	.001MF +8-2(DISC)	1503-0102-003	
C229	.01MF +8-2 50V(DISC)	1503-0103-007	
C230	.1MF 20% 12V BC-12(MC)	1502-0104-005	
C231	300PF 5% 50V LCQ-17(MICA)	1506-0301-550	
C232	68PF 5% 50V NPO(RD)	1524-0680-002	
C233	1 MF 20% 15V(TANT)	1515-0010-003	
C234	.01MF +8-2 50V(DISC)	1503-0102-007	
C235	.1MF 20% 12V BC-12(MC)	1502-0104-005	

MAIN BOARD - 704-064

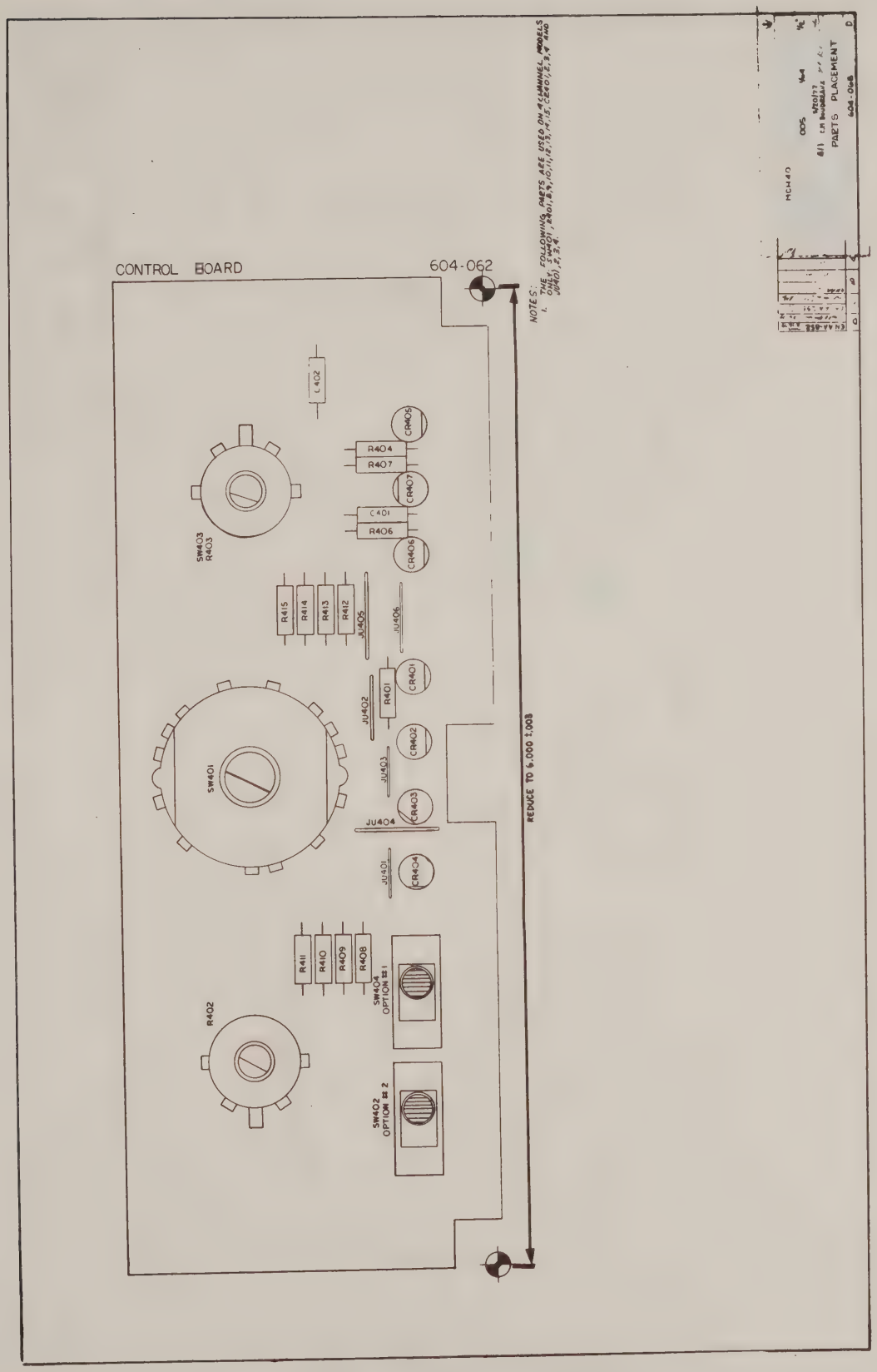
LOCATION	DESCRIPTION	PART NO.	
C236	0047MF 10% 100V(MY)	1508-0472-610	
C237	0047MF 10% 100V(MY)	1508-0472-610	
C238	not used		
C239	.001MF 10% 100V(MY)	1508-0102-610	
C240	.1MF 20% 12V BC-12(MC)	1502-0104-005	
C241	470PF 10% 50V(DISC)	1523-0471-002	
C242	100PF 5% 50V LCQ-17(MICA)	1506-0101-550	
C243	.001MF 10% 100V(MY)	1508-0102-610	
C244	.2MF 12V +8-2(MC)	1502-0204-006	
C245	.068MF 10% 100V(MY)	1508-0683-610	
C246	0047MF 10% 100V(MY)	1508-0472-610	
C247	.015MF 10% 100V(MY)	1508-0153-610	
C248	.01MF 10% 100V(MY)	1508-0103-610	
C249	220MF 16V 85D(ELEC)	1513-0221-002	
C250	.1MF 20% 12V BC-12(MC)	1502-0104-005	
C251	220MF 16V 85D(ELEC)	1513-0221-002	
C252	2.2MF 20% 25V(TANT)	1515-0229-005	
C253	not used		
C254	.001MF +8-2 50V(DISC)	1503-0102-003	
C255	75PF 5% 50V NPO(RD)	1524-0750-002	
C256	not used		
C257	6.8PF 10% 500V NPO(DISC)	1500-0689-905	
C258	.001MF +8-2 50V(DISC)	1503-0102-003	
COILS			
L201A	coil variable	1800-3191-406	(4ch only)
L201B	coil variable	1800-3191-406	(4ch only)
L201C	coil variable	1800-3191-406	(4ch only)
L201D	coil variable	1800-3191-406	
L202A	choke 5.6 uhy	1802-0569-008	(4ch only)
L202B	choke 5.6 uhy	1802-0569-008	(4ch only)
L202C	choke 5.6 uhy	1802-0569-008	(4ch only)
L202D	choke 5.6 uhy	1802-0569-008	(4ch only)
L203	choke 5.6 uhy	1802-0569-008	(4ch only)
L204	coil variable	1800-5100-521	
L205	coil variable	1800-5129-101	
L206	coil variable	1800-5129-102	
L207	choke .47 uhy	1802-0478-008	
L208	choke 22 uhy	1802-0220-008	
L209	choke 15 uhy	1802-0150-004	
L210	choke RF	1800-5100-522	
L211	not used		
L212	coil variable	1800-5129-103	
L213	coil variable	1800-5129-102	
L214	coil variable	1800-5100-523	
L215	coil variable	1800-5129-104	
L216	coil variable	1800-5129-102	
L217	not used		
L218	10.7 IF shielded	1800-3248-001	
L219	10.7 IF shielded	2800-3248-001	
L220	coil quad det	1800-3218-800	
L221	choke 1000 uhy	1800-3409-201	
L222	ferrite bead	2502-0000-001	

MAIN BOARD - 704-064

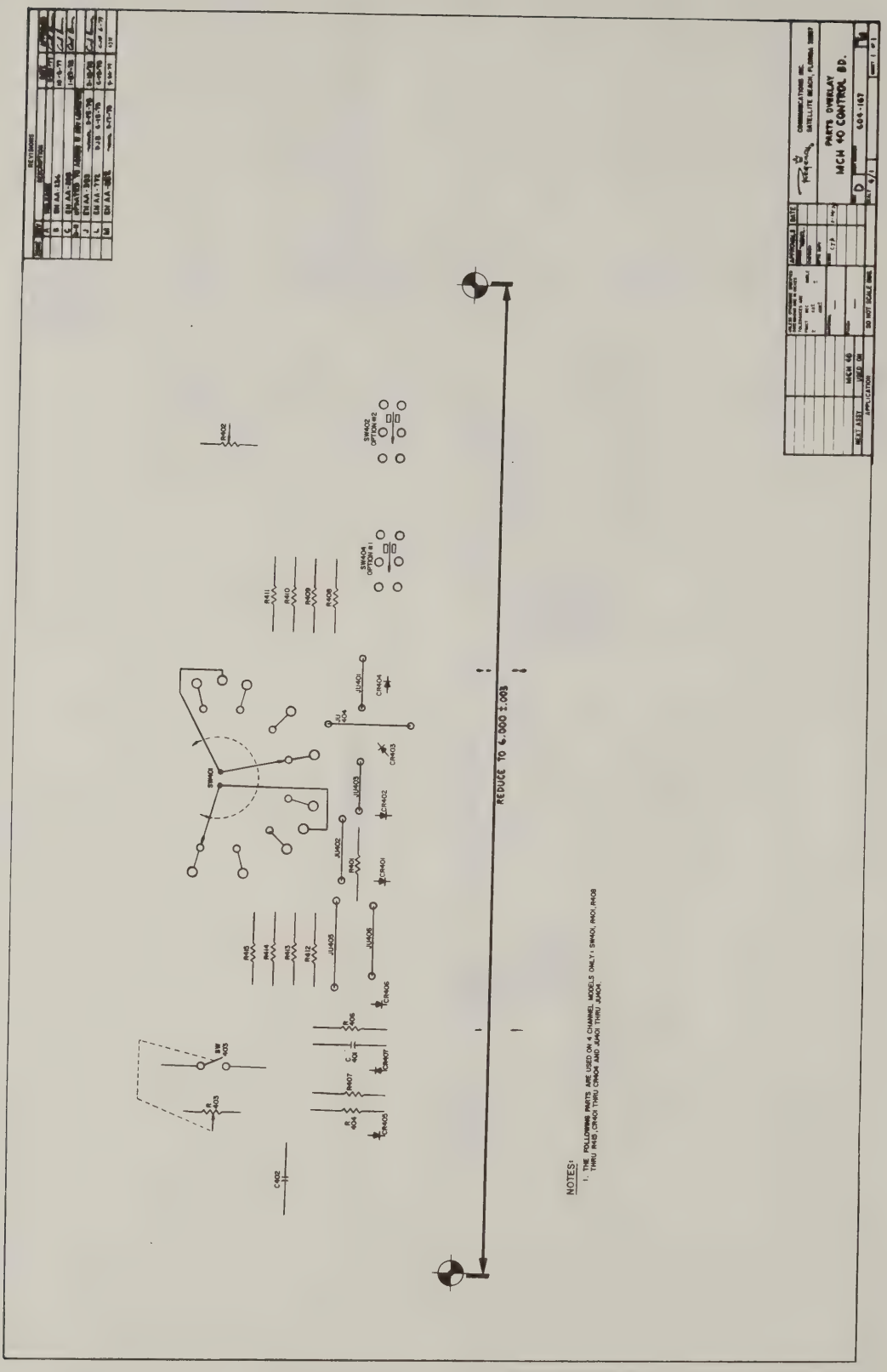
LOCATION	DESCRIPTION	PART NO.	
L223	ferrite bead	2502-0000-001	
L224	ferrite bead	2502-0000-001	
L225	ferrite bead	2502-0000-001	
L226	ferrite bead	2502-0000-001	
L227	ferrite bead	2502-0000-001	
L228	ferrite bead	2502-0000-001	
L229	ferrite bead	2502-0000-001	
DIODES			
CR201A	varicap	4809-5420-600	(4ch only)
CR201B	varicap	4809-5420-600	(4ch only)
CR201C	varicap	4809-5420-600	(4ch only)
CR201D	varicap	4809-5420-600	
CR202A	diode sil IN4148	4805-1241-200	(4ch only)
CR202B	diode sil IN4148	4805-1241-200	(4ch only)
CR202C	diode sil IN4148	4805-1241-200	(4ch only)
CR202D	diode sil IN4148	4805-1241-200	(4ch only)
CR203	diode sil IN4148	4805-1241-200	
CR204	diode sil IN4148	4805-1241-200	
CR205	diode sil IN4148	4805-1241-200	
CR206	diode sil IN4148	4805-1241-200	
CR207	diode sil IN4148	4805-1241-200	
TRANSISTORS			
Q201	Trans 2N5130	4801-0000-095	
Q202	Trans Blue Top SPS1476	4801-0000-003	
Q203	FET U310	4811-3406-200	
Q204	SPS-952-2	4801-0000-016	
Q205	Trans B ue Top SPS1476	4801-0000-003	
Q206	Junct FET 2N5668	4811-0000-030	
Q207	Trans Blue Top SPS1476	4801-0000-003	
INTEGRATED CIRCUITS			
IC201	IF sub system	3130-6056-500	
IC202	TD A2002 AV	3130-5407-602	
IC203	LM358N	3130-3167-909	
MISCELLANEOUS			
CF201	filter ceramic	2700-3209-500	
XF201	xtal filter 2P 10.7MHz	2705-3232-200	
XF202	xtal filter	2705-1306-600	
XF203	xtal filter 2P 10.7MHz	2705-3232-200	
Y202	xtal 10.245 MHz	2301-3151-601	

MAIN BOARD 704-064 (PARTS VARIABLE 30IIH)

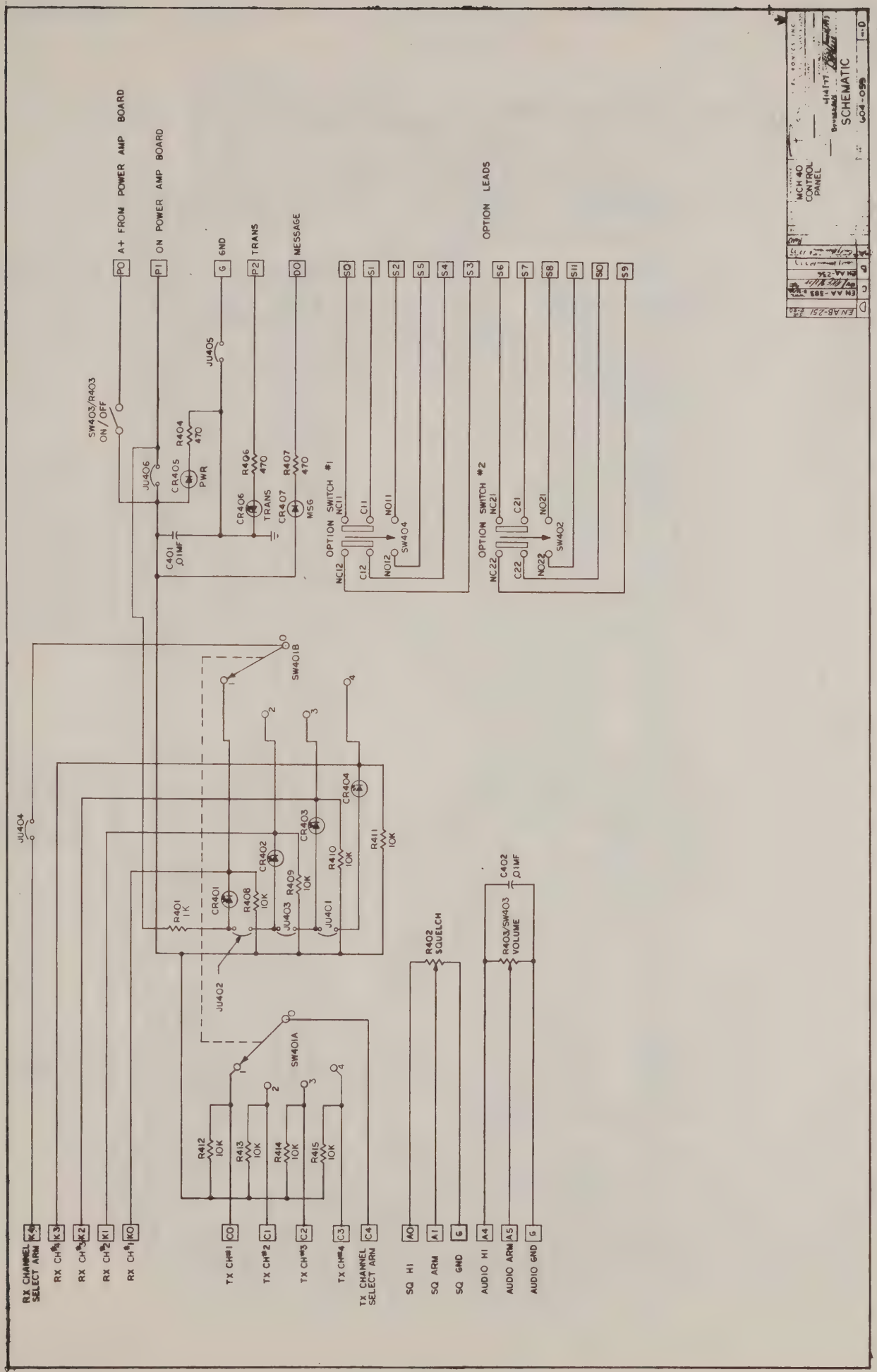
C204	20PF 10% 50V NPO(DISC)	1500-0200-650
C207	27PF 10% 500V	1501-0270-001
L205	coil variable	1800-5129-105
L206	coil variable	1800-5129-106
L212	coil variable	1800-5129-107
L213	coil variable	1800-5129-106
L215	coil variable	1800-5129-108
L216	coil variable	1800-5129-109
C345	3.3PF 10% 50V NPO(DISC)	1500-0339-905
C346	.56PF 10%(MUD)	1510-0568-900
C347	8.2PF 10% 500V NPO(DISC)	1500-0829-905
Q201	Trans 2N5130	4801-0000-095
Q205	Trans Red Top SPS 1473	4801-0000-035
Q207	Trans Red Top SPS 1473	4801-0000-035
R247	100 ohm ½W 10%	4700-0101-044



6-1 CONTROL BOARD
PARTS PLACEMENT



6-2 CONTROL BOARD
PARTS OVERLAY



6-3 CONTROL BOARD SCHEMATIC

CONTROL BOARD

RESISTORS (All Resistors are ± 5%, ¼W, unless otherwise noted.)

LOCATION	DESCRIPTION	PART NO.	
R401	1K ohm	4704-0102-032	4 channel only
R402	variable, sq.	4750-3406-402	
R403/ SW403	variable, SPST vol	4750-3406-401	
R404	470 ohm ¼W 10%	4700-0471-042	
R405	Not Used		
R406	470 ohm ¼W 10%	4700-0471-042	
R407	470 ohm ¼W 10%	4700-0471-042	
R408	10K ohm ¼W 10%	4700-0103-042	4 channel only
R409	10K ohm ¼W 10%	4700-0103-042	4 channel only
R410	10K ohm ¼W 10%	4700-0103-042	4 channel only
R411	10K ohm ¼W 10%	4700-0103-042	4 channel only
R412	10K ohm ¼W 10%	4700-0103-042	4 channel only
R413	10K ohm ¼W 10%	4700-0103-042	4 channel only
R414	10K ohm ¼W 10%	4700-0103-042	4 channel only
R415	10K ohm ¼W 10%	4700-0103-042	4 channel only

DIODES

CR401	LED, RED	4810-1282-900	4 channel only
CR402	LED, RED	4810-1282-900	4 channel only
CR403	LED, RED	4810-1282-900	4 channel only
CR404	LED, RED	4810-1282-900	4 channel only
CR405	LED, RED	4810-1282-900	
CR406	LED, RED	4810-1282-900	
CR407	LED, RED	4810-1282-900	

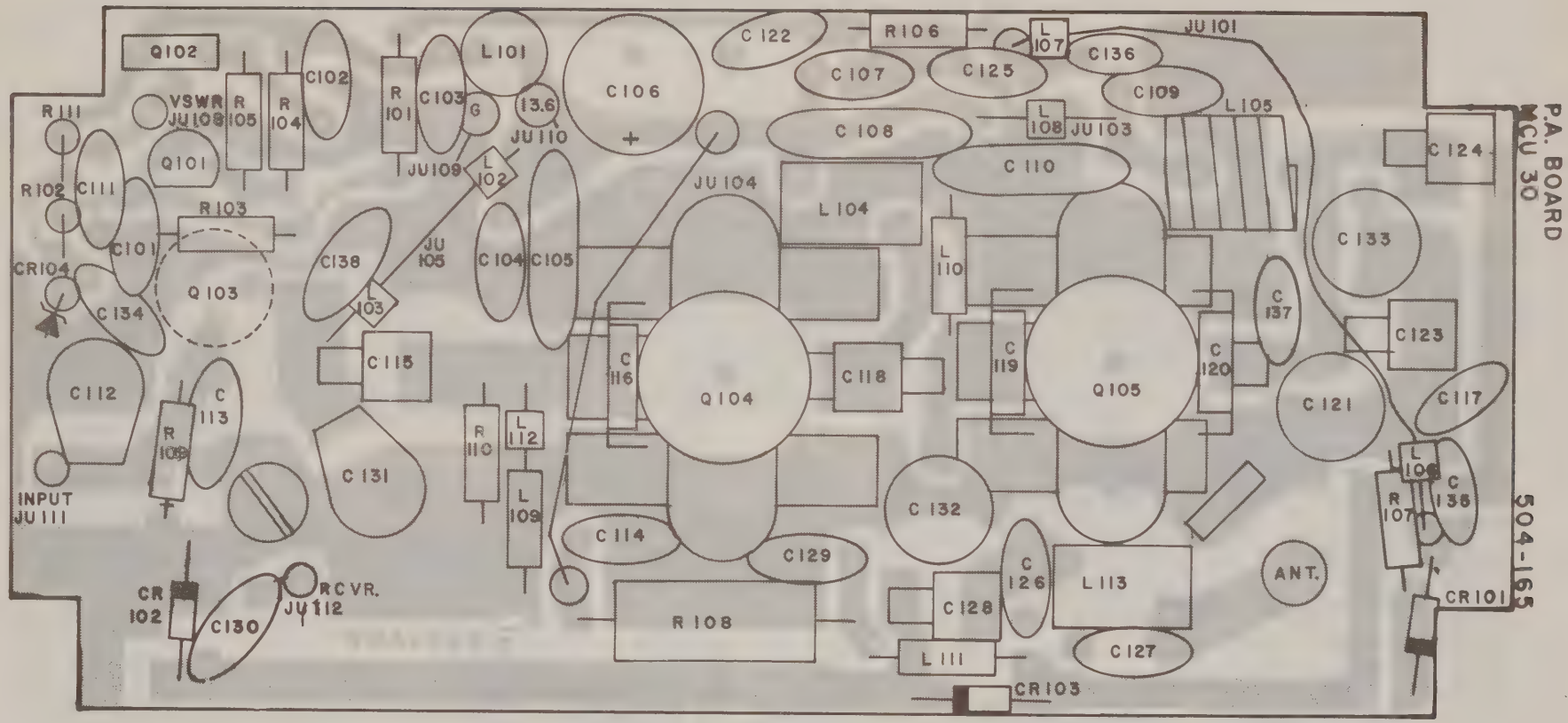
SWITCHES

SW401	sl sw	5113-5136-001	1 channel only
SW401	chn sel	5111-5411-001	4 channel only
SW402	slide	5113-5136-001	
SW403/ R403	switch/variable 5K	4750-3406-001	
S404	slide	5113-5136-001	

CAPACITORS

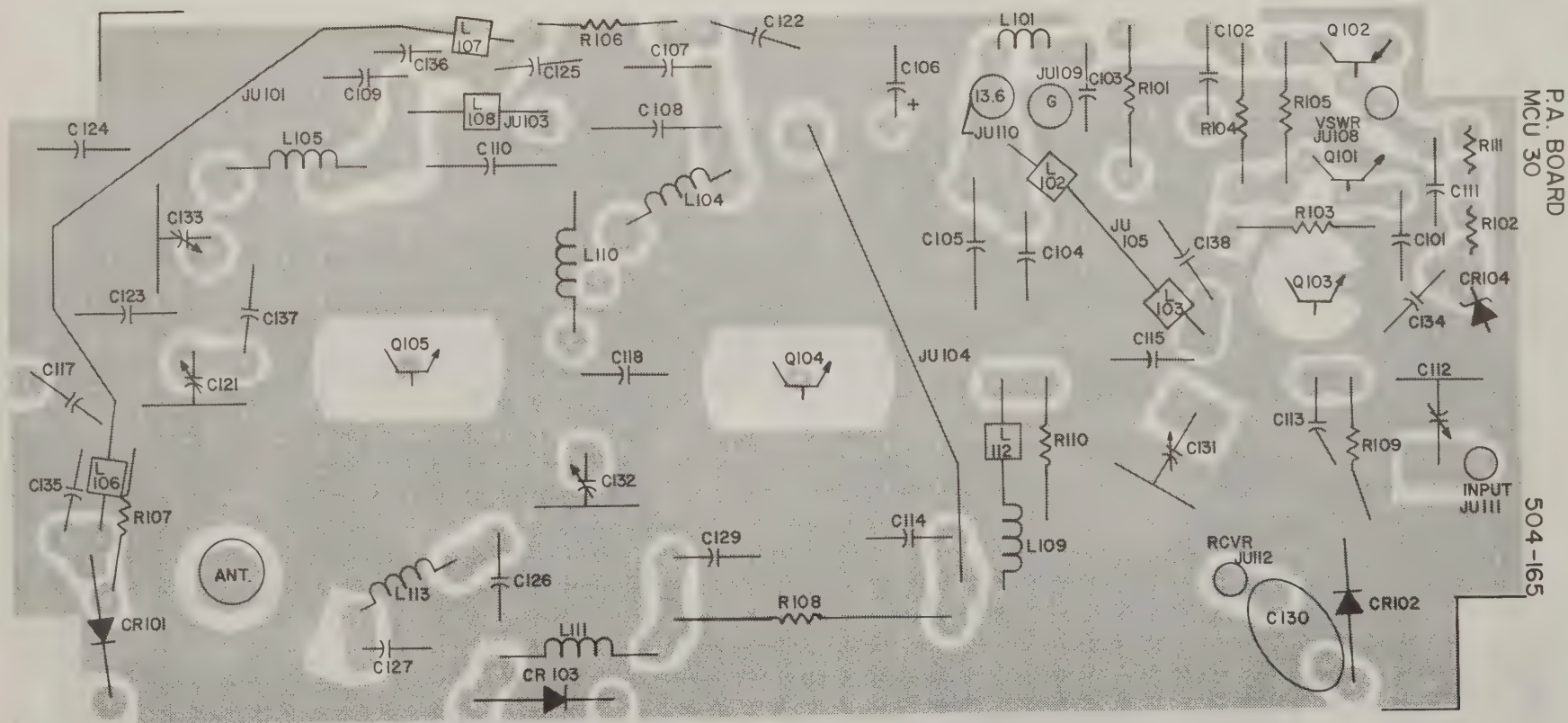
C401	tub cer .01 30% 25V	1538-0103-804
C402	tub cer .01 30% 25V	1538-0103-804

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASE R-048	9-7-78	DJ



		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT. ± — DEC. xx± — ANGLE ± — xxx± —	APPROVALS	DATE	Regency® COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937
			DRAWN DRB	6/1/78	
			CHECKED [illegible]	9/7/78	
			DFTG SUPV [illegible]	9/7/78	
		MATERIAL	ENGR DJ	9-7-78	PARTS PLACEMENT, MCU 30 - P.A.
	MCU-30 P.A.	FINISH			SIZE C PART NUMBER 504-177 REV. A
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DWG.			SCALE 4/1 SHEET 1 OF 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	B	REDRAWN PER EN AB-095	1-12-80	CSH



7-2 PA - MCU30
PARTS OVERLAY

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT. ± DEC. .xx± .xxx± ANGLE ±	APPROVALS	DATE
		MATERIAL	DRAWN SJR.	3-80
			CHECKED EMC	3-18-80
			DFTG. SUPV.	
			ENGR. CSH	3-11-80
	MCU-30 P.A.	FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DWG.		

Regency COMMUNICATIONS INC.
SATELLITE BEACH, FLORIDA 32937

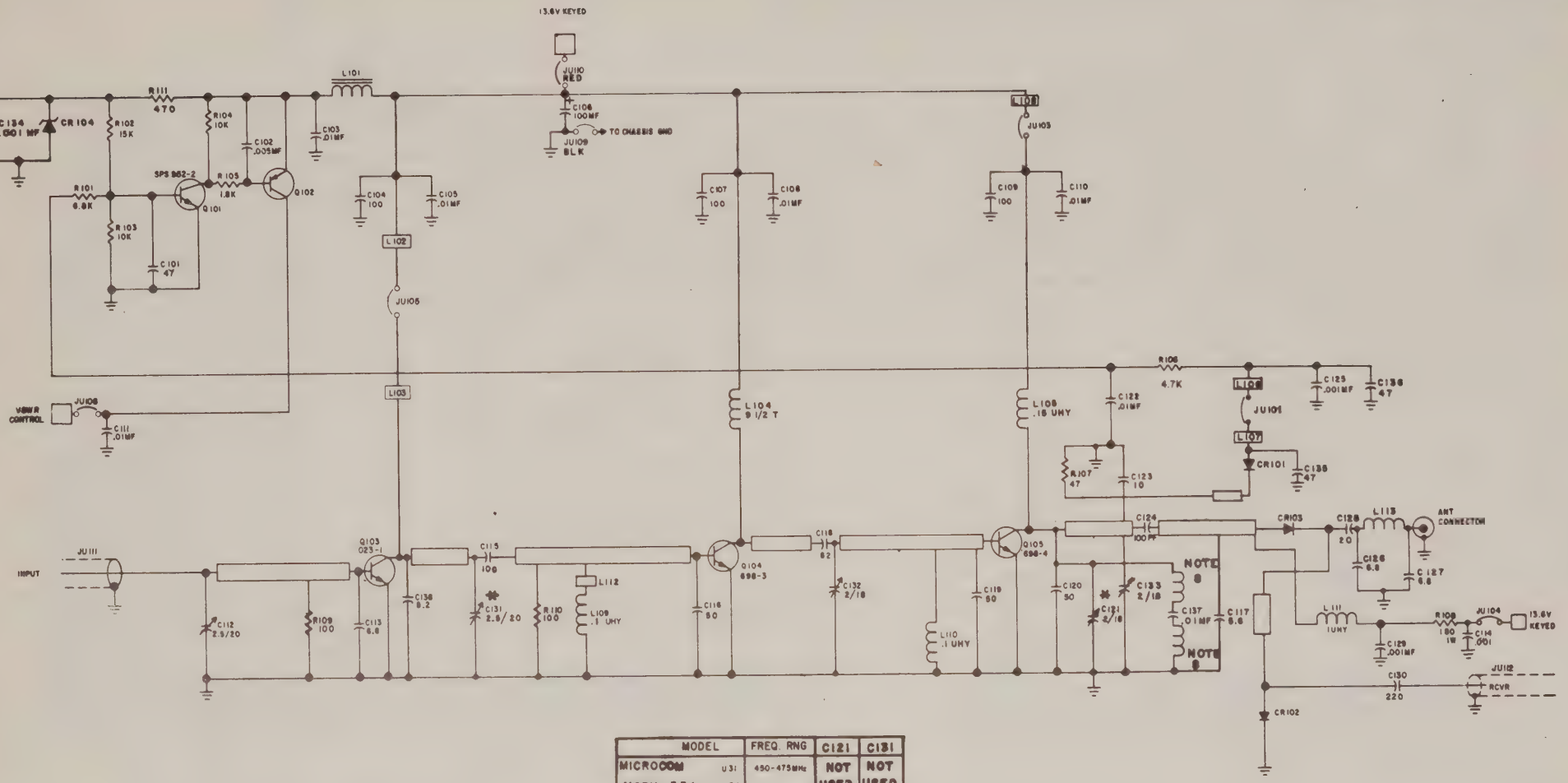
PARTS OVERLAY
MCU-30 P.A.

SIZE C | PART NUMBER 504-178 | REV B

SCALE 4/1 | SHEET 1 OF 1

604-096

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASE R-044	4-17-78	
	B	ECN AE-347	6-7	



MODEL	FREQ. RNG	C121	C131
MICROCOM U31 / MCBU-35A U34	450-475MHz	NOT USED	NOT USED
MCBU-35B MICROCOM U31H U34H	470-512 MHz		

NOTES

1. ALL CAPACITOR VALUES NOT SPECIFIED OTHERWISE ARE PICO-FARAD.
2. ALL RESISTOR VALUES NOT SPECIFIED OTHERWISE ARE OHMS, 1/4 W.
3. DENOTES SOLDERED IN JUMPERS.
4. DENOTES CIRCUIT TIE POINT.
5. DENOTES TRANSMISSION LINE ON P.C. BOARD.
6. DENOTES FERRITE BEAD.
7. * DENOTES FREQUENCY SENSITIVE COMPONENTS.
8. THESE INDUCTORS ARE THE LEADS OF C137.

REF. DES.	
LAST	NOT USED
C134	
L113	
R112	
Q105	
CR104	
JU112	JU102, JU106, JU107

MCBU-35
MCU-30 P.A.

SCHEMATIC
MCU-30 P.A. DECK
604-095 B
SHEET 1 of 1

PARTS LIST

MICROCOM U30

POWER AMPLIFIER

RESISTORS (All Resistors are 5%, ¼W, unless otherwise noted)

LOCATION	DESCRIPTION	PART NO.	
R101	6.8K	4704-0682-032	
R102	15K	4704-0153-032	
R103	10K ¼W 10%	4700-0103-042	
R104	10K ¼W 10%	4700-0103-042	
R105	1.8K	4704-0182-032	
R106	15K	4704-0153-032	
R107	47 Ohm ¼W 10%	4700-0470-042	
R108	180 Ohm 1W 5%	4704-0181-035	
R109	100 Ohm carb comp	4700-0101-042	
R110	100 Ohm carb comp	4700-0101-042	
R111	470 Ohm ¼W 10%	4700-0471-042	

CAPACITORS

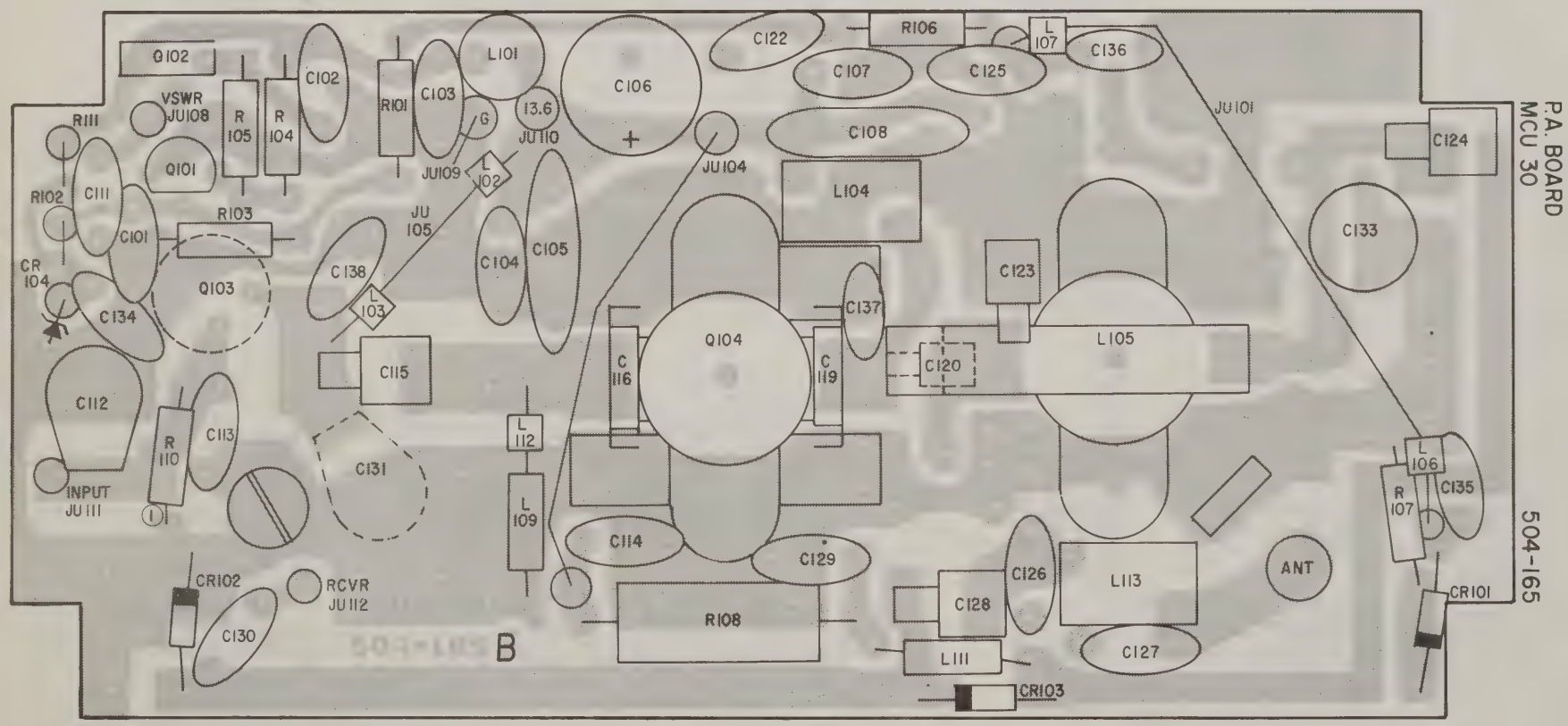
C101	47PF 50V 5%	1524-0470-002	
C102	.005MF 50V +8-2%(DISC)	1503-0502-005	
C103	.01MF 50V +8-2%(DISC)	1503-0103-007	
C104	100PF 500V 10% NPO (DISC)	1500-0101-905	
C105	.01MF 500V +8-2%(DISC)	1503-0103-008	
C106	100MF 16V 85D(ELEC)	1513-0101-002	
C107	100PF 500V 10% NPO (DISC)	1500-0101-905	
C108	.01MF 500V +8-2%(DISC)	1503-0103-008	
C109	100PF 500V 10% NPO (DISC)	1500-0101-905	
C110	.01MF 500V +8-2%(DISC)	1503-0103-008	
C111	.01MF 50V +8-2%(DISC)	1503-0103-007	
C112	2.5-20PF (TRIM)	1517-0000-034	
C113	6.8PF 500V 10%(DISC)	1500-0689-905	
C114	.001MF 50V +8-2%(DISC)	1503-0102-003	
C115	100PF(MICA)	1522-0101-007	
C116	50PF(MICA)	1522-5418-301	
C117	5.6PF 10% 500V NPO (DISC)	1500-0569-905	
C118	82PF(MICA)	1522-0820-007	
C119	50PF(MICA)	1522-5418-301	
C120	50PF(MICA)	1522-5418-301	
C121	2-18PF(TRIM)	1517-0000-041	(U31H,U34H only)
C122	.01MF 50V +8-2%(DISC)	1503-0103-007	
C123	10PF(MICA)	1522-0100-006	
C124	100PF(MICA)	1522-0101-007	
C125	.001MF 50V +8-2%(DISC)	1503-0102-003	
C126	6.8PF 500V 10%(DISC)	1500-0689-905	
C127	6.8PF 500V 10%(DISC)	1500-0689-905	
C128	20PF(MICA)	1522-0200-006	
C129	.001MF 50V +8-2%(DISC)	1503-0102-003	
C130	220PF 50V 5%(MICA)	1506-0221-550	

POWER AMPLIFIER - MICROCOM U30

LOCATION	DESCRIPTION	PART NO.
C131	2.5-20PF(TRIM)	1517-0000-034 (U31H,U34H only)
C132	2-18PF(TRIM)	1517-0000-041
C133	2-18PF(TRIM)	1517-0000-041
C134	.001MF 50V +8-2%(DISC)	1503-0102-003
C135	47PF 50V 5%(DISC)	1524-0470-002
C136	47PF 50V 5%(DISC)	1524-0470-002
C137	.01PF 100V +8-2%(DISC)	1501-0103-009
C138	8.2PF 500V 10%(DISC)	1500-0829-905
DIODES		
CR101	hot carrier, MBD201	4816-3302-200
CR102	Pin, UM9484	4815-3408-600
CR103	Pin, UM9484	4815-3408-600
CR104	Zener, 5.1V 5%, IN5993B	4808-0000-031
COILS		
L101	Bead, choke	2502-3254-101
L102	Bead, choke	2502-0000-001
L103	Bead, choke	2502-0000-001
L104	RF choke	1803-5125-904
L105	Choke, .15 uhy	1803-3269-000
L106	Bead, choke	2502-0000-001
L107	Bead, choke	2502-0000-001
L108	Bead, choke	2502-0000-001
L109	Choke, .1 uhy	1802-0108-008
L110	Choke, .1 uhy	1802-0108-008
L111	RF choke 1 uhy	1802-0010-009
L112	Bead, choke	2502-0000-001
L113	Choke, LM-2	1803-5125-907
TRANSISTORS		
Q101	NPN SPS-952-2	4801-0000-016
Q102	PNP SJE-1608	4802-0000-003
Q103	304-023-1	4804-3402-301
Q104	302-690-3	4804-3269-803
Q105	302-698-4	4804-3269-804
CHASSIS		
C1	.001 20V (FT)	1521-0102-001
C2	.001 20V	1521-0102-001

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASE R-057	10-5-78	Daf
	B	ENAA-500 dw	11-6-78	Daf
	C	EN AB-098(1) MC	5-22-79	Daf

8-1 PA - MCU15
PARTS PLACEMENT

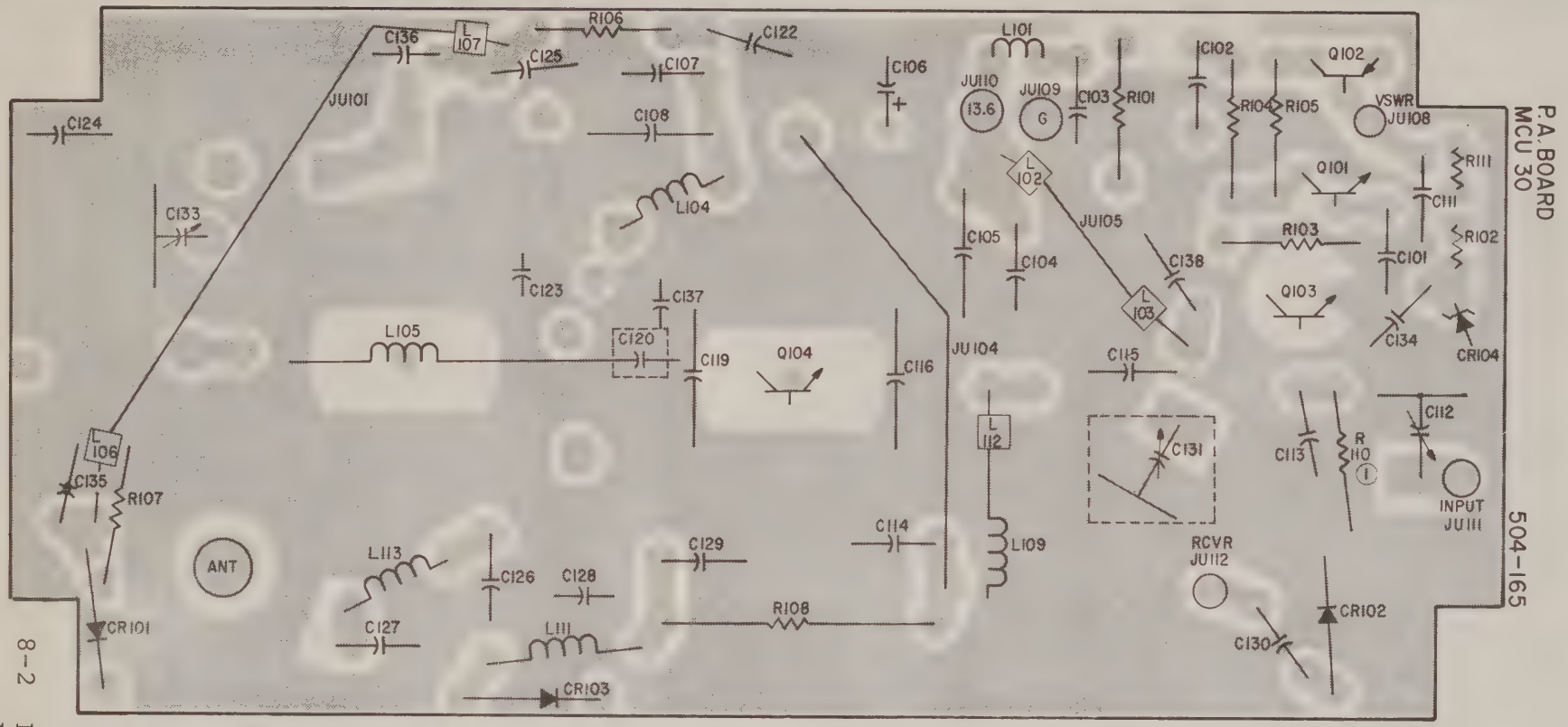


NOTE:

1. DASHED COMPONENTS REPRESENT UNIQUE U15H / U18H PARTS PLACEMENT.

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE FRACT ± ~ DEC xx± ~ .xxx± ANGLE ± ~	APPROVALS	DATE	Regency COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937
		MATERIAL ~	DRAWN CMcC	9-78	PARTS PLACEMENT P. A. BD.
		FINISH ~	CHECKED dw	10-78	
	MCU-15		DFTG SUPV		
T ASSY	USED ON		ENGR Daf	10-78	SIZE C PART NUMBER 504 REV C
APPLICATION		DO NOT SCALE DWG.			SCALE 4/1 SHEET 1 OF 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASE R-057	10-5-78	
	B	ENAA-500 dw	11-6-78	
	C	EN AB 098 (1) CMC	3/26/81	



NOTE:
1. DASH LINES REPRESENT UNIQUE U15H/U18H COMPONENTS.

8-2 PA - MCU15
PARTS OVERLAY

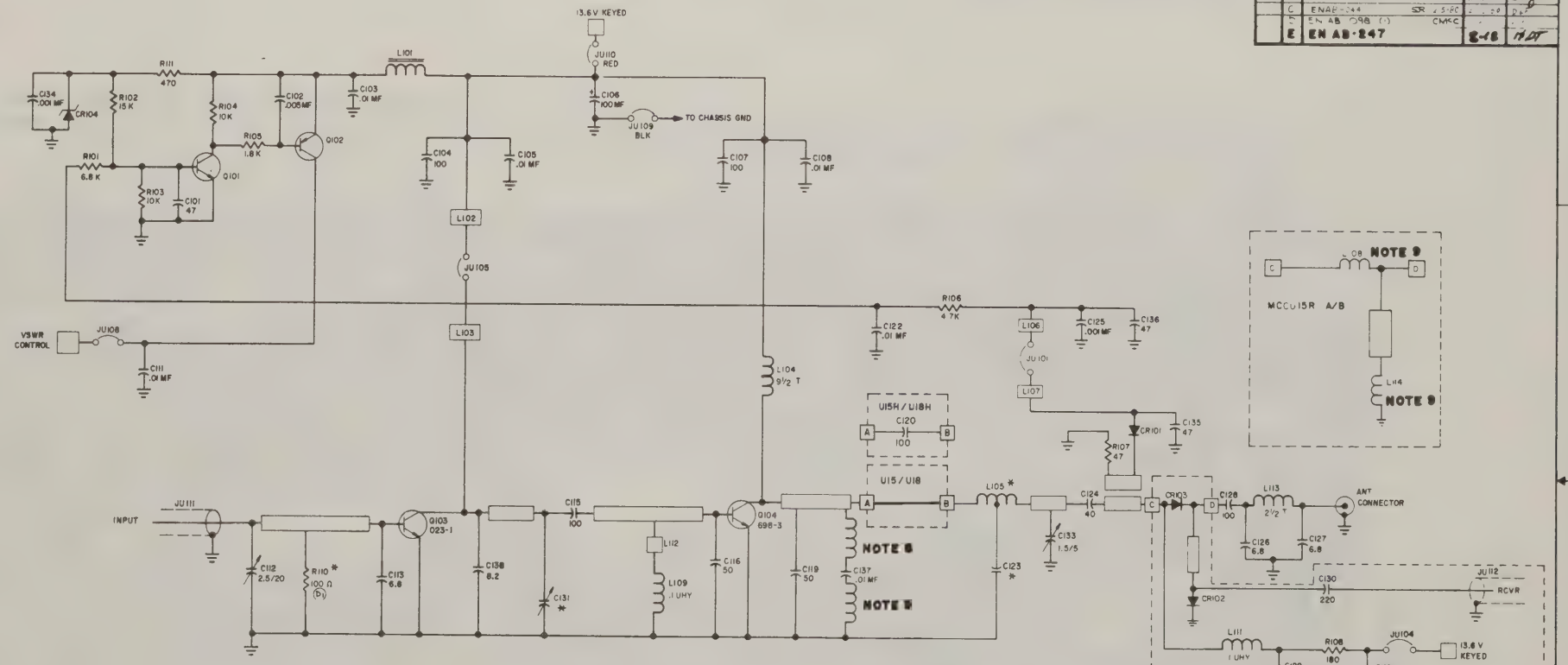
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE FRACT ± ~ DEC xx± .xxx± ANGLE ± ~	APPROVALS	DATE
			DRAWN CMcC	9-78
			CHECKED dw	10-78
			DFTG. SUPV	
		MATERIAL ~	ENGR	10-78
	MCU 15	FINISH ~		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DWG.		

Regency COMMUNICATIONS INC.
SATELLITE BEACH, FLORIDA 32937

PARTS OVERLAY
P.A. BD.

SIZE C | PART NUMBER 504-224 | REV C

SCALE 4/1 | SHEET | OF



PARTS VARIABLE (*)

MODEL		FREQ RANGE	C131	C120	C123	L105
MICRO COM BUI8A	U15	450-475 MHz	—	—	20	2110-1414-800
	U18	450-475 MHz				
	U15RA					
MICRO COM BUI8B	U15H	470-512 MHz	2.5/20	100	33	2110-1415-801
	U18H	470-512 MHz				
	U5RB					

EXCITER BOARD PARTS VARIABLE

MAIN BOARD NO	R110
1700-7404-200	1803-3412-400
704-064	100 Ω

REF DESIGNATOR

LAST	NOT USED
R111	R109
C138	C108, 110, 117, 118, 121, 132
L114	L110
CR104	
Q104	
J0112	J0102, 103, 105, 107

NOTES
1. ALL CAPACITOR VALUES NOT SPECIFIED OTHERWISE ARE PICO-FARAD.
2. ALL RESISTOR VALUES NOT SPECIFIED OTHERWISE ARE OHMS, ¼ W.
3. DENOTES SOLDERED IN JUMPERS.
4. DENOTES CIRCUIT TIE POINT
5. DENOTES TRANSMISSION LINE ON P.C. BOARD.
6. DENOTES FERRITE BEAD
7. ---- DENOTES FREQ VARIATIONS
8. THESE INDUCTOR ARE THE LEADS OF C137.
9. L108 AND L109 ARE 1/4 INCH OF .090 WIDE BRAIDED CONDUCTOR.

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASE R-057	10-5-78	
	B	ENAA-500	11-6-78	
	C	ENAB-244 SR 4-5-80	4-30	
	D	EN AB 098 (-) CMKC		
	E	EN AB-247	8-18	

MCU-18			
MCCU15R			
MCU 15			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DWG.		

APPROVALS: CMcC 10-78; Ed 10-78

COMMUNICATIONS INC SATELLITE BEACH, FLORIDA 32937

SCHEMATIC
P.A. DECK

D 604-119 E

SCALE —— SHEET 1 OF 1

PARTS LIST MICROCOM U15

POWER AMPLIFIER

RESISTORS (All Resistors are ±5 %, ¼W, unless otherwise noted)

LOCATION	DESCRIPTION	PART NO.	
R101	6.8K ohm	4704-0682-032	
R102	15K ohm	4704-0153-032	
R103	10K 10% ¼W	4700-0103-042	
R104	10K 10% ¼W	4700-0103-042	
R105	1.8K ohm	4704-0182-032	
R106	15K ohm	4704-0153-032	
R107	47 ohm 10% ¼W	4700-0470-042	
R108	180 ohm 5% 1W	4704-0181-035	
R109	not used		
R110	100 ohm carb comp	4700-0101-042	
R111	470 ohm 10% ¼W	4700-0471-042	

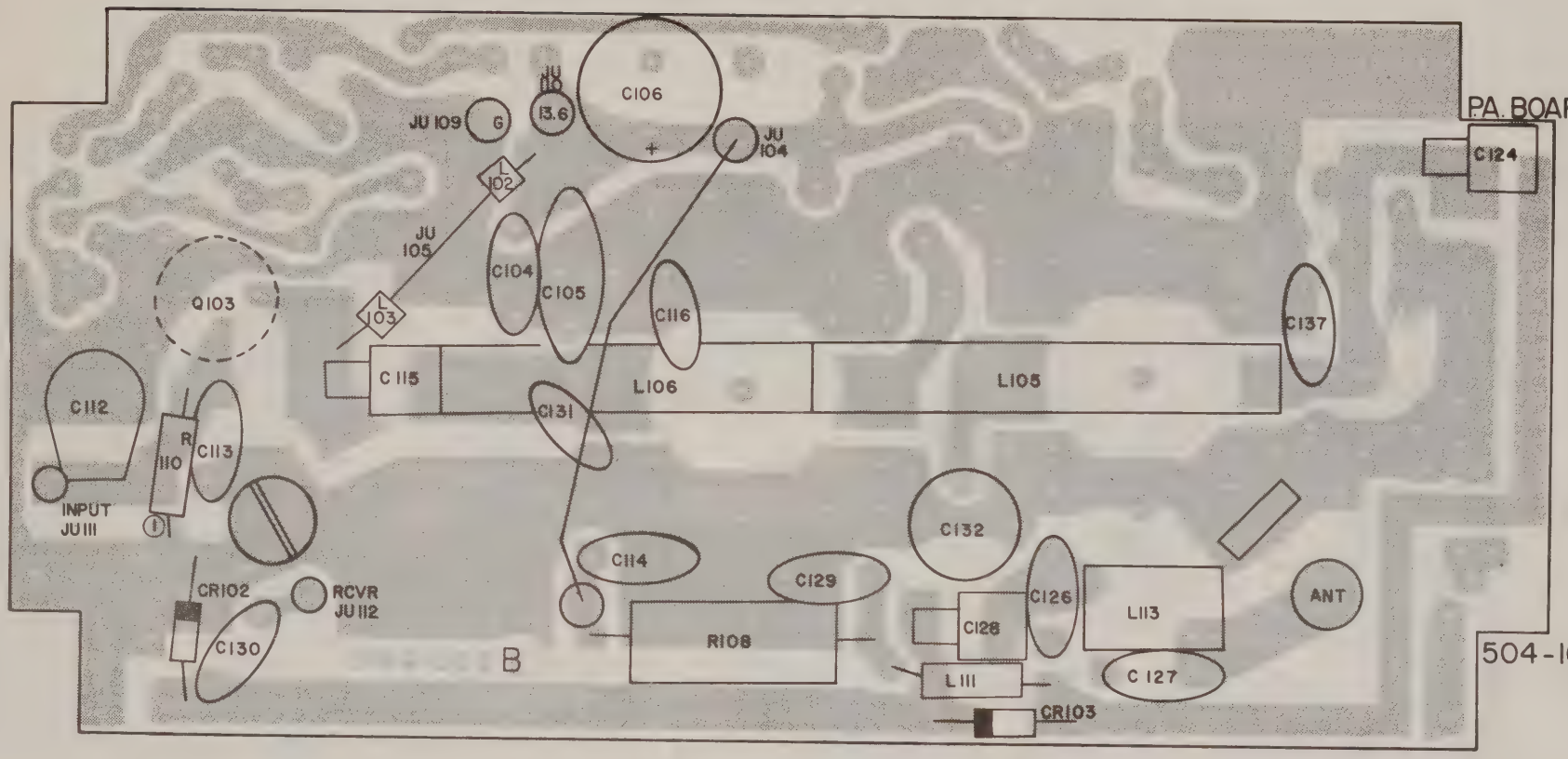
CAPACITORS

C101	.47PF 50V 5%	1524-0470-002	
C102	.005MF 50V +8-2%(DISC)	1503-0502-005	
C103	.01MF 50V +8-2%(DISC)	1503-0103-007	
C104	100PF 500V 10% NPO (DISC)	1500-0101-905	
C105	.01MF 500V +8-2%(DISC)	1503-0103-008	
C106	100MF 16V 85D(ELEC)	1513-0101-002	
C107	100PF 500V 10% NPO (DISC)	1500-0101-905	
C108	.01MF 500V +8-2%(DISC)	1503-0103-008	
C109	not used		
C110	not used		
C111	.01MF 50V +8-2%(DISC)	1503-0103-007	
C112	2.5-20PF(TRIM)	1517-0000-034	
C113	6.8PF 500V 10%(DISC)	1500-0689-905	
C114	.001MF 50V +8-2%(DISC)	1503-0102-003	
C115	100PF(MICA)	1522-0101-007	
C116	50PF(MICA)	1522-5418-301	
C117	not used		
C118	not used		
C119	50PF(MICA)	1522-5418-301	
C120	100PF(MICA)	1522-0101-007	(U15H,U18H only)
C121	not used		
C122	.01MF 50V +8-2%(DISC)	1503-0103-007	
C123	20PF(MICA	1522-0200-006	(U15, U18 only)
C123	33PF(MICA)	1522-0330-006	(U15H,U18H only)
C124	40PF(MICA)	1522-0400-006	
C125	.001MF 50V +8-2%(DISC)	1503-0102-003	
C126	6.8PF 500V 10%(DISC)	1500-0689-905	
C127	6.8PF 500V 10%(DISC)	1500-0689-905	
C128	100PF(MICA)	1522-0101-007	
C129	.001MF 50V +8-2%(DISC)	1503-0102-003	
C130	220PF 50V 5%(MICA)	1506-0221-550	

POWER AMPLIFIER - MICROCOM U15

LOCATION	DESCRIPTION	PART NO.	
C131	2.5-18PF(TRIM)	1517-0000-034	(U15H,U18H only)
C132	not used		
C133	.15-5.5PF(TRIM)	1517-0000-011	
C134	.001MF 50V +8-2%(DISC)	1503-0102-003	
C135	47PF 50V 5%(DISC)	1524-0470-002	
C136	47PF 50V 5%(DISC)	1524-0470-002	
C137	.01PF 100V (DISC)	1501-0103-010	
C138	8.2PF 500V 10%(DISC)	1500-0829-905	
DIODES			
CR101	hot carrier, MBD201	4816-3302-200	
CR102	Pin, UM9484	4815-3408-601	
CR103	Pin, UM9484	4815-3408-601	
CR104	Zener, 5.1V 5%, IN5993B	4808-0000-030	
COILS			
L101	Bead, choke	2502-3254-101	
L102	Bead, choke	2502-0000-001	
L103	Bead, choke	2502-0000-001	
L104	RF choke	1803-5125-904	
L105	Bonding strap	2110-1415-800	(U15, U18 only)
L105	Bonding strap	2110-1415-801	(U15H,U18H only)
L106	Bead, choke	2502-0000-001	
L107	Bead, choke	2502-0000-001	
L108	not used		
L109	Choke, .1 uhy	1802-0108-008	
L110	Not used		
L111	RF choke 1 uhy	1802-0010-008	
L112	Bead, choke	2502-0000-001	
L113	Choke, LM-2	1803-5125-907	
TRANSISTORS			
Q101	NPN SPS-952-2	4801-0000-016	
Q102	PNP SJE-1608	4802-0000-003	
Q103	304-023-1	4804-3402-301	
Q104	302-690-3	4804-3269-803	
Q105	not used		
CHASSIS			
C1	.001 20V (FT)	1521-0102-001	
C2	.001 20V	1521-0102-001	

ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	R-259 SAM.	2/15/80	
	B	EN AB-098(1) CM-C	3/24/80	



9-1 PA - MCU03
PARTS PLACEMENT

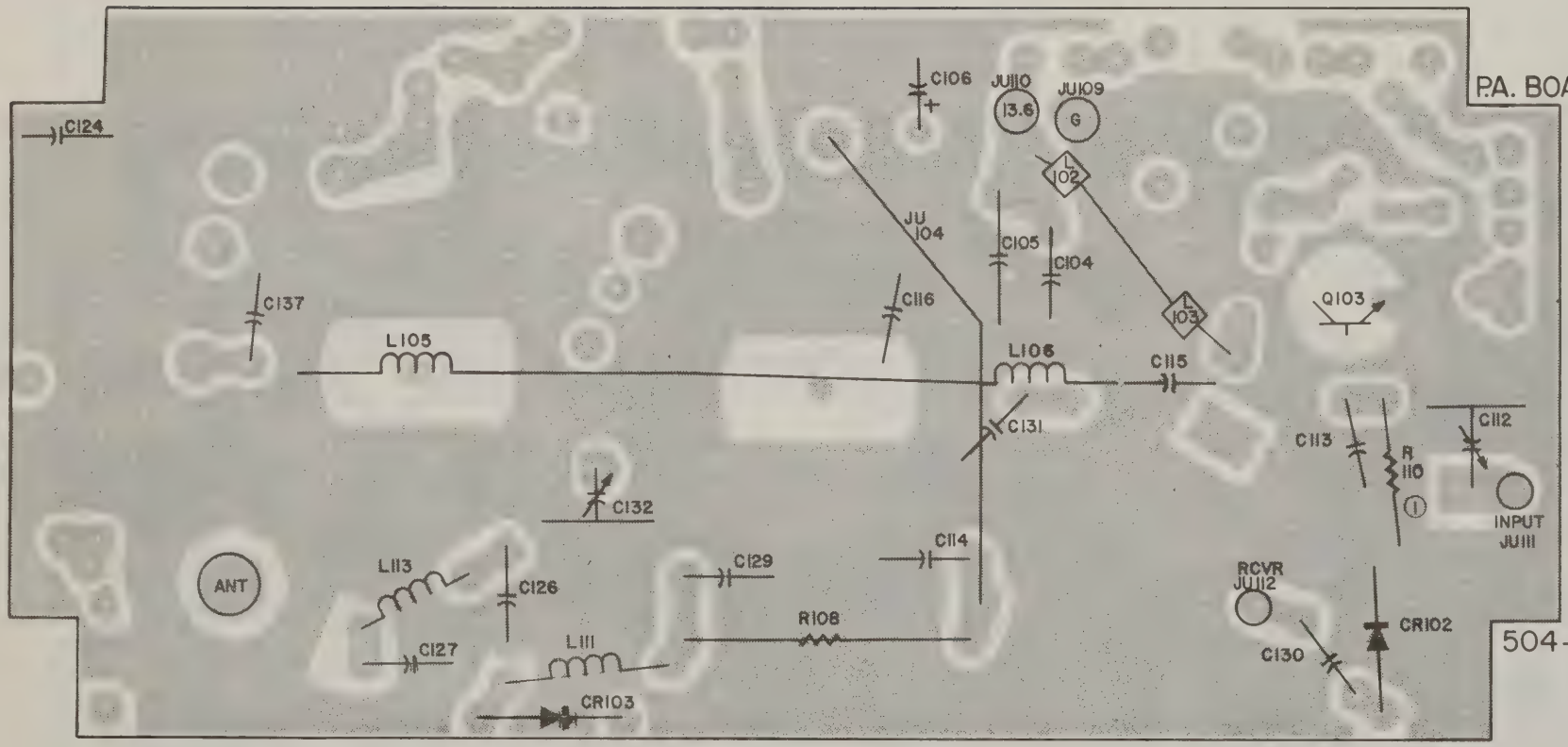
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT. DEC. ANGLE ± .XX± ± .XXX±	APPROVALS	DATE
			DRAWN SAM.	2-6-80
			CHECKED	
			OPTG. SUPV.	
		MATERIAL	ENGR.	
	MCU 03			
	MCU 06	FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DWG.		

Regency COMMUNICATIONS INC.
SATELLITE BEACH, FLORIDA 32937

PARTS PLACEMENT
PA. BOARD

SIZE C | PART NUMBER 504-359 | REV. B
SCALE 4/1 | SHEET 1 OF 1

REVISIONS					
ZONE	REV	DESCRIPTION		DATE	APPROVED
	A	R-259	SDH	2/15/80	
	B	AB-098 (1)	CM	2/26/80	

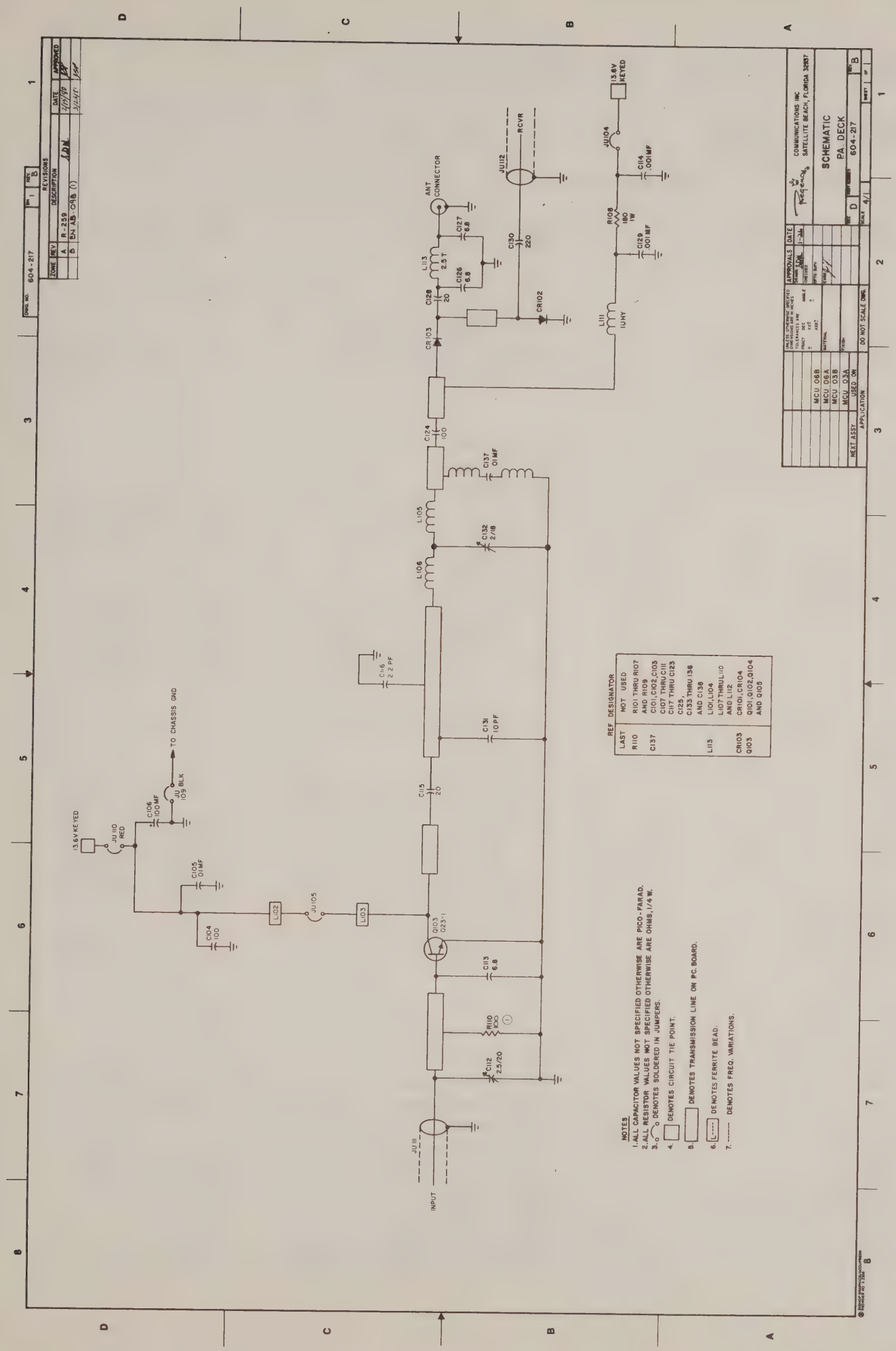


P.A. BOARD MCU-03

504-165

9-2 PA - MCU03
PARTS OVERLAY

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACT. ± DEC. .XX± .XXX± ANGLE ±	APPROVALS	DATE	Regency COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937
			DRAWN SDH	3-7-80	
			CHECKED		PARTS OVERLAY
			DFTG. SUPV		P.A. BOARD
		MATERIAL	ENGR		
	MCU 06				
	MCU 03	FINISH			SIZE C PART NUMBER 504-360 REV. B
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DWG.			SCALE 4/1 SHEET 1 OF 1



9-3 PA - MCU03 - SCHEMATIC

PARTS LIST MICROCOM U03, U06

POWER AMPLIFIER

RESISTORS (All resistors are ±5%, 1W, unless otherwise noted)

LOCATION	DESCRIPTION	PART NUMBER
R101-R107	Not used	
R108	180 ohm 1W 5%	4704-0181-035
R109	Not used	
R110	carb comp 100 ohm	4700-0101-042

CAPACITORS

C101	Not used	
C102	Not used	
C103	Not used	
C104	CD 100pf 10% 50V	1525-0101-004
C105	CD .01mf +8-2 500V	1503-0103-008
C106	E 100mf 16V	1513-0101-002
C107-C111	Not used	
C112	Trim 2.5-20pf	1517-0000-034
C113	CD 6.8pf 10% 500V NPO	1500-0689-905
C114	CD .001mf +8-2 50V	1503-0102-003
C115	Mica 20pf 5% 250V	1522-0200-006
C116	CD 2.2pf 10% 500V NPO	1500-0229-905
C117-C123	Not used	
C124	Mica 100pf 10% 250V	1522-0101-007
C125	Not used	
C126	CD 6.8pf 10% 500V NPO	1500-0689-905
C127	CD 6.8pf 10% 500V NPO	1500-0689-905
C128	Mica 20pf 5% 250V	1522-0200-006
C129	CD .001mf +8-2 50V	1503-0102-003
C130	SM 220pf 5% 50V	1506-0221-550
C131	CD 10pf 10% 500V NPO	1500-0100-905
C132	Trim 2-18pf	1517-0000-0 1
C133-C136	Not used	
C137	CD .01mf 8-2 25V	1501-0103-009

COILS

L101	Not used	
L102	ferrite bead	2502-0000-001
L103	ferrite bead	2502-0000-001
L104	Not used	
L105	bonding strap	2110-1415-80
L106	bonding strap	2110-1415-80
L107-L110	Not used	
L111	choke 1 uhy	1802-0010-008
L112	Not used	
L113	choke molded 1½ turns	1803-5125-907

TRANSISTORS

LOCATION	DESCRIPTION	PART NUMBER
Q101	Not used	
Q102	Not used	
Q103	Trans pwr RF	4804-3402-301

DIODES

CR101	Not used	
CR102	Diode Pin UM9484	4815-3408-600
CR103	Diode Pin UM9484	4815-3408-600

SECTION 10 - MECHANICAL PARTS LIST

PART NUMBER	DESCRIPTION/WHERE USED	QUANTITY
1300-6069-901	Microphone	1
1400-3192-400	Mounting bracket	1
2806-0625-002	Screw 1/4-20 x 5/8 hex	2
2841-0000-001	Washer, internal 1/4	2
2501-3408-700	Bushing, nylon	2
Wraps		
2823-0250-028	Screw 4-40 x 1/4 taptite	8
1408-6404-800	Wrap, top	1
7025-4045-700	Wrap, bottom/speaker assembly	1
1408-6404-902	Wrap, bottom	1
1301-3411-900	Speaker, 3.2 ohm	1
2853-0000-003	Nut, Tinnerman	3
2107-0000-001	Cont, receptacle female	2
Front Panel		
1411-6403-202	Bezel, 1 channel	1
1411-6403-201	Bezel, 4 channel	
2823-0250-028	Screw, 4-40 x 1/4 taptite	4
2844-1315-300	Washer, insulating on vol. and sq. controls	2
2402-5410-903	Knob	2 - 1 ch 3 - 4 ch
Chassis		
2811-3185-600	Screw 4 x 1/4 Type AB Control bd (4), main bd (7), Shield (1), lug (1), bracket (1) Cap plate (3)	17
7025-4045-800	Chassis	1
7025-4017-000	Microphone connector	1
2107-0000-001	Cont receptacle, female	
2508-5417-900	Option shield	1
2102-0000-005	Solder lug 4 PA gnd	1
2102-0000-009	Solder lug 5 to main bd	1
1400-1421-700	Bracket, heatsink	1
2803-0187-001	Screw 4-40 x 3/16 binderhead	1
5400-3407-201	Heatsink Q305	1
5400-0000-001	Heatsink Q304	1
7011-4103-700	Capacitor plate assembly	1
1521-0102-001	Capacitor, feedthru .001mf, C1,C2	2
2803-0250-001	Screw 4-40 x 1/4 binderhead	1
2852-0440-001	Kepnut 4-40 x 1/4 w/above on IC202	1
2109-5120-408	Conn housing male 12 pin	1
7025-4067-200	DC connector staked	1
6018-1288-302	Wire 18 AWG stranded	6 in
7025-4067-300	Audio connector staked	1
2508-5409-901	Can pair shielding (L212,213)	1
2508-5409-902	Can pair shielding (L205,206), (L215,216)	2
2851-1428-001	Nut lock 1/4-28 Palnut	12
2821-3248-200	Screw, tuning in L205,206,212,213, 215,216	6

PART NUMBER	DESCRIPTION/WHERE USED	QUANTITY
2830-1411-000	Single channel crystal clip	1
2513-6422-200	Spring plate MCU-03 series only	1
Power Amplifier		
5400-7404-000	Heatsink	1
2803-0312-001	Screw 4-40 x 5/16 Q104(2),Q105(2), mtg(1)	5
2804-1125-010	Screw 6-32 x 1 1/8	2
2512-5105-106	O-ring rubber .114 I.D.	2
2120-3275-102	Roll pin 5/65 dia. x 1/4	2
6042-0000-007	Cable RG316/U JU111,112	12 in
2105-0000-020	UHF RF connector	1
DC Power Cord		
7011-4042-700	DC power cord assembly 15A	1
2109-5120-303	Connector housing female	1
2107-3244-204	Contact pin male	2
5106-0000-019	fuse 15A	1
6014-1288-306	Wire 14 AWG stranded	8 ft
7011-4086-900	Fuseholder assembly 15A	1
2100-0000-005	fuseholder body	2
2107-0000-004	Contact fuse	2
2513-0000-001	Spring	2
7011-1078-400	Hardware Kit #5	1